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THE WEEVIL GENUS SMICRONYX IN AMERICA NORTH OF MEXICO (COLEOPTERA: CURCULIONIDAE)

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Introduction

The species of the genus *Smicronyx* occurring in North America north of Mexico were last revised in 1894 by W. G. Dietz. Since that time the efforts of numerous collectors have brought thousands of specimens of *Smicronyx* and a great deal of information into various museums. Unfortunately, the revision by Dietz has proved very inadequate either for determining and arranging that material or for use as a basis for more detailed studies of the various species and groups of species with respect to their relationships and limits. He did not designate type specimens for any of the species; the identity of some species was not clear because the types were not studied; and no information on the biology was provided. Moreover, a number of scattered papers containing descriptions of new species or information on described species have been published since Dietz's revision.

The purpose of the present study is to correct and complete the work of the past, to assemble the more recent published information,

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and reappraise, in a preliminary way, the arrangement and delimitations of the species and higher groups within the genus as it occurs in North America north of Mexico. This work should prepare the way for the solution of the more involved problems involving the status and natural relationships of the species and groups of species.

Some of the problems which originally confronted the writer could not be solved on the basis of the material studied, and a number of new problems were brought to light. These are mentioned in the text. Many of them can be solved only by study of additional material and of living weevils in their natural habitats.

MATERIALS AND METHODS

MATERIALS EXAMINED: Most of the specimens used in this study were borrowed from the collections of several institutions and of a few private collectors. Approximately one hundred specimens were collected by the author.

The abbreviations used to indicate the collections to which the material belongs are: AMNH, American Museum of Natural History, New York City; CAS, California Academy of Sciences, San Francisco; CM, Carnegie Museum, Pittsburgh; CNHM, Chicago Natural History Museum; CNC, Canadian National Collections, Ottawa; CU, Cornell University Dept. of Entomology, Ithaca; DMA, collection of the author; ELS, collection of Elbert L. Sleeper, Long Beach State College, Long Beach, California; MCZ, Museum of Comparative Zoology, Harvard University, Cambridge; and USNM. United States National Museum.

MEASUREMENTS: All measurements were made with an ocular micrometer in a binocular microscope. Body length was measured from the apices of the elytra to the front of the head between the eyes. The width of the elytra at the base was measured across the humeri at their widest point. The length of the prothorax was measured dorsally from the middle of the base to the middle of the apical margin. The width of the prothorax was measured at whatever was the widest point on the prothorax. The length of the rostrum was measured from the basal groove to the apex above the mandibles. The rest of the measurements do not appear to require further explanation.

DRAWINGS: Figures 1–157 on pp. 217–239 were made through use of either a Bausch and Lomb VH microprojector or a combination of an ocular grid in a binocular microscope and squared paper.

STATISTICS: The standard deviations (s), which have been given for the measurements of some species, were calculated by the machine method given by Snedecor (1956, pp. 55, 56). The procedure followed in determining the statistical significance of the difference in measure-

ments between certain species is that of Snedecor (1956, pp. 244–245, 250) whose test criterion, or F value, is based on the ratio.

$$\frac{\text{mean square of sample means}}{\text{mean square of individuals}}.$$

TERMINOLOGY

The definitions of most of the terms used in this study are found in the glossary published by Torre-Bueno (1937). However, the terms used in reference to genitalia are those used by Bissel (1937) and by Bruhn (1947). The terms used in discussions of geographic distributions are those used by A. K. Lobeck in his "Physiographic Provinces of North America" (1948), published by Columbia University.

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HISTORY

The nomenclatorial history of the genus *Smicronyx* began in 1836 when Schoenherr proposed the name *Micronyx* for a group of seven

species and named *Micronyx reichi* Gyllenhal as the type of the genus. Two of the included species had been described in *Curculio*, and one had been described in *Elleschus*. The rest of the species, including *reichi*, had not been previously described. However, the name *Micronyx* was preoccupied because it had been published by Boisduval (*in* D'urville, 1835) as a name for a genus of scarabaeid beetles, and in 1843 Schoenherr replaced his *Micronyx* with the name *Smicronyx*. *Smicronyx reichi* then became ipso facto the type of the genus.

The first synthetic work on the North American species of *Smicronyx* was published by LeConte in 1876. He placed a number of species, which had been incorrectly placed in other genera, in *Smicronyx* and erected the genus *Desmoris*, which included two species considered near *Smicronyx*. In addition, LeConte placed two species, later recognized as *Smicronyx*, in the genus *Pachytychius* Jekel.

In 1892 Casey published a revision of the North American species of *Smicronyx*, in which he placed all of the genus *Desmoris* and both North American species of *Pachytychius* in *Smicronyx*, and in which he described 19 species as new.

Dietz (1894) published a revision of the North American species of the subtribe Desmori (now the subtribe Smicronychi), in which he recognized the genus *Desmoris* and erected two new genera, *Pachyphanes* and *Synertha*, for certain elements of *Smicronyx*. In this revision, Dietz also erected the subgenus *Pseudosmicronyx* and described a total of 48 new species in *Smicronyx*, *Desmoris*, *Pachyphanes*, and *Synertha*.

Champion (1902) described six species from Central America and Mexico. In the same work he synonymized the genera *Desmoris*, *Pachyphanes*, and *Synertha* with *Smicronyx*, but did not give his reasons for doing so.

Blatchley and Leng (1916) retained *Desmoris* and *Pachyphanes*, primarily to "serve the purpose in lessening the difficulties of handling a very unwieldy group."

For reasons given in other sections, the present writer includes in *Smicronyx* all the forms formerly placed in the genera *Desmoris*, *Pachyphanes*, and *Synertha*.

By the time of publication of Leng's "Catalog of the Coleoptera of North America North of Mexico" (1920), there were 91 specific names proposed for forms of *Smicronyx* in America north of Mexico and since that time a total of 8 additional specific names have been proposed by Blatchley (1920, 1922, 1928), Pierce (1939), Buchanan (1941), and Sleeper (1955).

European workers have erected two subgenera, which include certain Old World species. In 1896 Desbrochers des Loges erected the subgenus *Chalybodontus*, which included a few species occurring in

southern Europe and North Africa. Hustache (1935) erected the subgenus *Afrosmicronyx* for a single species found in the French Sudan of Africa.

SYSTEMATIC POSITION

A detailed consideration of the proper position of the genus *Smicronyx* in a natural classification of the family Curculionidae is beyond the scope of this study, but a brief consideration of its present position is undertaken in the following paragraphs.

Smicronyx and a few other genera of the tribe Erirhinini (*Sharpia* Tournefort, *Topelatus* Hustache, *Hedychrous* Marshall, and *Promecotarsus* Casey) have been associated as the subtribe Smicronychi of some American authors (as in Blatchley and Leng, 1916) or the tribe Smicronychini of other authors (as in Junk's "Coleopterorum Catalogus"). The most distinctive features of the Smicronychi (or Smicronychini) are the constriction at the base of the rostrum (figs. 3, 7, 9, 14, 21) and the connate condition of the tarsal claws (figs. 39–42).

As treated in this study, the genus *Smicronyx* includes all the North American species in the subtribe Smicronychi, with exception of three species which form the genus *Promecotarsus* Casey. The latter genus differs from *Smicronyx* in having a very long fourth tarsal segment, which is subequal to or longer than the first three segments combined (fig. 43). There are also differences in the general facies of the two genera; the general body shape is more cylindrical than in *Smicronyx* (see fig. 30), and the scales are broader and more imbricate than in most of *Smicronyx*.

CHARACTERS

The characters used in this study may represent only a small portion of the ones which might be of use if their reliability were tested on larger numbers of specimens than are presently available for many of the species. Most of the characters used to differentiate species or groups of species in discussions and in keys are not in quantitative terms, but some statements are made concerning the size of species or measurements of their parts. The measurements given for each species may be examined in connection with these statements.

In the paragraphs which follow, each of the characters used in describing, grouping, or distinguishing the species is discussed separately; however, it must be stressed that it is usually not one or two characters alone but a combination of all the characters together which gives the species their distinctive appearance.

Color: The color of the surface of the various body parts is often useful in distinguishing species; e.g., in *S. commixtus* Dietz the elytra are reddish, but in an otherwise similar species, *S. utilis* Buchanan, they are nearly black. However, color is reliable only in normal, ful-

ly colored specimens. Teneral specimens, which are usually much lighter in color than the normal, are usually impossible to identify on the basis of body color.

SCALES: The color pattern of scales, particularly on the prothorax and elytra, is often of value as a specific character (as is shown in the descriptions and discussions of *S. quadrifer*, *S. albonotatus*, and *S. pusio*). Some groups of species, such as those of the *S. discoideus* group, with dark maculae on their prothoraces and elytra, or the species of the *S. lineolatus* group, with elytral vittae, may be distinguished by scale patterns. Unfortunately, the scales are easily rubbed off the specimens, and such specimens are difficult to identify if critical characters involve the scales. In addition, the scales may become saturated with the body oils of the specimens, and this may cause the scales to appear different in color than they were originally.

ROSTRUM: The general shape, length, and pitting or sculpturing of the rostrum are usually fairly consistent in a given species, and often are important as distinguishing features of a species, groups of species, and subgenera. For example, the subgenus *Desmoris* may be distinguished from the other subgenera by the long polished rostra of the females in that subgenus. *Smicronyx lepidus* Dietz has a very stout gibbous rostrum, which is important in diagnosing that species from the rest of the species in the *S. quadrifer* group. The rostrum of *S. cinereus* Motschulsky has been shown to be significantly shorter before the antennal insertions than that of a similar species, *S. obscurus* new species (see the discussion of *S. obscurus*).

HEAD: No really significant characters have been found on the head, but as can be seen in the descriptions, there is some variation between species in color, surface texture, and scales of the head.

ANTENNAE: As is mentioned in the description of the subgenera and as can be seen in the measurements of the species, the relative length of the second and third funicular segments varies from one species to another, but is usually similar among the species of a given subgenus. In a few species, such as *S. sparus* Casey, the antennal club is glabrous at the base. No differences other than those mentioned have been found useful as taxonomic characters.

PROTHORAX: The shape of the prothorax is often similar between species of a given group, as in the species of the *S. corniculatus* group, or the *S. obtectus* group, or the *S. ovipennis* group. In such instances, the shape of the prothorax may be useful in distinguishing one group of species from an otherwise similar group. For example, the species of the *S. ovipennis* group have a strongly rounded prothorax, but the prothorax of the species of the *S. abnormis* group is only slightly rounded at the sides.

The sculpturing and punctation of the prothoracic disk is often similar among species of a given group, as in the species of the *S. obtectus* and *S. ovipennis* groups. However, this is not the case in some groups, such as the *S. sculpticollis* group, in which most of the species differ from each other in punctation and/or sculpturing of the disk of the prothorax.

Elytra: The shape of the elytra is usually similar in all the species of a given group, although slight differences in the prominence of the humeri and in the distinctness of the declivities may be detected. Some groups of species may be distinguished from others on the basis of elytral shape. For example, the elytra of the species of the *S. ovipennis* group are more inflated than those of the other groups of species in the subgenus *Pseudosmicronyx*.

Femora: The femora may differ in shape between species of the same group, as between *S. resplendens* Dietz, which has very strongly clavate femora, and *S. pusio* LeConte, in which the femora are not strongly clavate. However, no group characters have been observed in the femora.

Tibiae: Although the tibiae may differ from one species to another in color, shape, stoutness, and scaling, the differences observed between species or between groups of species were either slight or rather subtle and have not been used as critical characters in this study.

Tarsi: As may be seen in the descriptions, the relative length and width of the different tarsal segments may vary between species. The third tarsal segment may be much broader than the first two, as in *S. amoenus* (Say), or only slightly so, as in *S. obtectus* LeConte and *S. albidosquamosus* Klima. The tarsal claws are more connate and parallel in some species than in others. However, these differences in tarsi are not very well defined, and have been mentioned in the keys and descriptions only to supplement the more important characters.

Genitalia: As is mentioned in the descriptions of the subgenera, the genitalia of both sexes show a strong tendency to be elongate in the subgenera *Desmoris* and *Pseudosmicronyx* and are almost never elongate in the subgenera *Smicronyx* and *Pachyphanes*. Thus, relatively important subgeneric characters have been found in the genitalia. The genitalia may be similar among the species of a given group, as in the males of the species of the *S. ovipennis* group (figs. 85, 86, 87), or they may be quite distinctive, as between the males of *S. congestus* Casey and *S. sculpticollis* Casey (figs. 54, 57).

The terminal abdominal terga apparently offer little in the way of specific or group characters except in the species of the *S. resplendens* group, which have unusually stout spines on the hind margin of the propygidia of the males, and unique projections above the spiracles of the propygidium.

Measurements: The statistical comparisons of *S. cinereus* Motschulsky and *S. obscurus*, new species, *S. lutulentus* Dietz and *S. albonotatus*, new species, and *S. flavicans* LeConte and *S. immaculatus*, new species, indicate that measurements often differ significantly between apparently related species. Further quantitative comparisons of species and groups of species may reveal much more about the reliability of such characters as body length and the relative size of various body parts.

BIOLOGY

North American species: The biologies of only a few North American species of *Smicronyx* have been studied in detail. In general, the weevils are known to breed in the seeds and/or stems of various herbaceous plants, particularly species of *Cuscuta* (Convolvulaceae) in the subgenus *Smicronyx*, and various genera of the tubuliflorous Compositae in the other three subgenera. However, several other plant families are represented among the possible or probable hosts (see table 1, pp. 193, 194).

From the studies of Pierce (1907) on *Smicronyx* (*S.*) *tychoides* LeConte and *S.* (*Desmoris*) *scapalis* LeConte, of Weiss and West (1921) on *S.* (*S.*) *sculpticollis* Casey, and of Rempel and Shevkenek (1941) on *S.* (*Pseudosmicronyx*) *utilis* Buchanan, a few generalizations about the life history pattern of the genus are possible. The adults apparently appear on the host plants early in the summer, after which they feed on tender flower and leaf parts while engaging in copulation and oviposition. The larvae feed on the seeds or internal tissues of the host plant until fully grown, after which they usually emerge from the plant, burrow into the soil, where they spend the winter, and pupate sometime late in the spring. Some species (i.e., *S. sculpticollis* Casey and *S. cuscutiflorae* Pierce) may pupate in the plants. The number of larval instars is unknown, with the exception of *S. utilis*, which has four.

Some of the species which breed in *Cuscuta* (i.e., *S. tychoides* LeConte and S. *sculpticollis* Casey) cause galls to form on the stems, while other species such as *S. cuscutiflorae* Pierce breed in the seed capsules of the *Cuscuta*. Those species which breed in plants other than *Cuscuta* (e.g., *S. utilis* and *S. scapalis*) generally breed in or among the seeds.

The host-plant information gathered from the specimens examined, from the literature, and from field work has been condensed and set forth in table 1 below. The first number in each column indicates the number of species in the subgenera of *Smicronyx* that have been found in association with plants of the family or genus indicated on the left side of the table. The next figure, separated from the first by a colon, indicates the number of species actually reared from plants of

TABLE 1.—*Recorded host plants of the American species of* Smicronyx *north of Mexico.*

Plants associated with specimens	Subgenera			
	Smicronyx (data from 20 species)	*Pachyphanes* (data from 7 species)	*Pseudosmicronyx* (data from 16 species)	*Desmoris* (data from 9 species)
Bignoniaceae			1	
Chilopsis (Am.)			1:0 (1)	
Chenopodiaceae			2	
Salsola			1:0 (1)	
Beta			2:0 (2)	
Compositae	6	6	16	9
Vernoniae				
**Vernonia*				1:0 (1)
Astereae				
Aphanostephus (Am.)		1:0 (1)		
Baccharis (Am.)	1:0 (1)			
Chrysothamnus (Am.)			1:0 (1)	
Grindelia (Am.)		1:0 (1)		2:0 (4)
Gutierrezia (Am.)	1:0 (1)		1:0 (1)	
* *Solidago*		1:0 (1)		
Haplopappus (Am.)			1:0 (1)	1:1 (4)
Inuleae				
Pluchea			1:0 (1)	
Heliantheae				
**Ambrosia*	2:0 (2)	1:0 (1)	6:2 (14)	
**Bidens*				1:0 (1)
Coreopsis		2:0 (2)	2:0 (2)	
Encelia (Am.)			2:0 (5)	
**Helianthus* (Am.)	1:0 (1)	1:0 (1)	2:0 (3)	6:2 (29)
Heliopsis (Am.)				1:0 (1)
Hymenoclea (Am.)			1:0 (3)	
Iva (Am.)			3:2 (5)	
Parthenium (Am.)	1:0 (3)			
**Rudbeckia* (Am.)		2:0 (5)		1:0 (1)
**Silphium* (Am.)				1:0 (2)
Viguiera (Am.)	1:0 (1)			
**Xanthium*			1:0 (1)	
Heleniae				
Flaveria (Am.)	1:0 (2)			
Gaillardia (Am.)		1:0 (1)		
**Helenium* (Am.)		3:2 (8)	1:0 (1)	
Anthemideae				
Anthemis		1:0 (1)		
**Artemisia*			1:0 (2)	
Convolvulaceae	12			
Cuscuta	12:7 (29)			
Euphorbiaceae		1	1	
Croton		1:1 (2)	1:0 (1)	
Labiatae	1	2		
**Monarda* (Am.)	1:0 (4)	2:0 (2)		

TABLE 1.—*Recorded host plants of the American species of* Smicronyx *north of Mexico*—Continued.

Plants associated with specimens	Subgenera			
	Smicronyx (data from 20 species)	*Pachyphanes* (data from 7 species)	*Pseudosmicronyx* (data from 16 species)	*Desmoris* (data from 9 species)
Leguminosae	2	2	4	1
Cassia				1:0 (1)
**Medicago*	1:0 (1)	1:0 (2)	1:0 (1)	1:0 (1)
Parosela (Am.)		1:0 (1)		
Prosopis	1:0 (1)		1:0 (2)	
**Trifolium*			2:0 (2)	
Vachellia	2:1 (2)			
Malvaceae	4	2	1	1
Abutilon	1:1 (1)			
Callirhoe (Am.)		1:1 (1)		
Gossypium	3:0 (3)	1:0 (2)	1:0 (3)	1:0 (1)
Sphaeralcea	1:0 (2)			
Onagraceae			1	
**Oenothera*			1:0 (1)	
Pinaceae	1		2	
**Pinus*	1:0 (1)		2:0 (2)	
Rhamnaceae	1			
Condalia	1:0 (1)			
Rosaceae	1		2	
Cotoneaster	1:0 (1)			
**Fragaria*			1:0 (1)	
**Prunus*			1:0 (1)	
Ulmaceae			1	
Ulmus			1:0 (1)	

that genus. The third figure, in parentheses, indicates the total number of separate records upon which the first two figures are based. The plant genera marked "(Am.)" have a strictly American distribution. All plant genera marked with an asterisk are known to be hosts of some species of *Cuscuta* (see Gaertner, 1950). Figures for families indicate only the total species associated with plants of those families.

An interpretation of this table from the standpoint of the phylogenetic relationships and relative ages of the various groups of plants is not attempted here because so many of the host-plant records cannot be taken as definite evidence that the weevils actually breed in the plants, and because there is little or no information available on the host plants of a number of species of *Smicronyx*.

SOUTH AMERICAN SPECIES: The three known South American species of *Smicronyx* (known only from Argentina and Chile), *S. vallium* Kuschel, *S. chiliensis* Kuschel, and *S. argentinensis* Hustache,

are all reported by Kuschel (1949, 1952) to breed in species of *Cuscuta*. Nothing else is known about the biologies of these species.

Old World species: The biologies of the species of *Smicronyx* of Europe and North Africa are better known than the biologies of the rest of the Old World species. At present, six species in those regions are known to breed in various species of *Cuscuta*, according to the works of Hustache (1930), Blair (1935), Solari (1952), and Pericart (1957). Some of the *Cuscuta*-breeding species (i.e., *S. jungermanniae* Reich and *S. menozzii* Solari) cause the formation of stem galls. *S. jungermanniae* pupates in the soil, according to Bargagli (1883). *Smicronyx* (*S.*) *reichi* Gyllenhal has been reported reared from "larvae emerging from the seedheads of *Erythraea centaurium*" by Blair (1935). Voss (1953) described a species (*S. swertiae* Voss) which was reared from galls on *Swertia perrenis* in Germany. *Smicronyx* (*Chalybodontus*) *cyaneus* Gyllenhal has been recorded by Bargagli (1883), Hustache (1930), and Martelli (1933) as breeding in the stems of various species of *Phelipaea* and *Orobanche* (Orobanchaceae) in the Mediterranean region; the larvae pupate in the soil. Marshall (1942) reports that *S. gossypii* Marshall adults are known to feed on cotton (*Gossypium* sp.) in the Anglo-Egyptian Sudan, but the species is not reported to actually breed in cotton. A single species from the Bihar region of India has been reported "reared from larvae living in galls on the stems of *Cuscuta reflexa*" by Marshall (1923). Khan and Murthy (1955) reported that *Smicronyx albovariegatus* Faust, an Indian species, had been found breeding in the seed capsules and stems of *Striga* species (Scrophulariaceae). When attacking the stems of the *Striga* plants, the weevils formed galls. The larvae were found to leave the plants and enter the soil before pupating.

NATURAL CLASSIFICATION OF NORTH AMERICAN SUBGENERA WITH SUGGESTIONS CONCERNING THEIR EVOLUTION

The ideas presented here concerning the possible steps or phases (see I, II, III below) in the evolution of the larger natural groups of *Smicronyx* found in North America are dependent upon present evidence. The results of future investigations, particularly of the biology of the groups, may or may not favor these ideas. The reader may have a clearer understanding of the groups referred to in this discussion after reading the descriptions and discussions of the subgenera and species groups, and after examining diagram 1 on page 199.

I. Subgenus *Smicronyx:* This subgenus probably originated sometime before the Pleistocene Epoch of the Cenozoic Era (see the discussion below). The species of this subgenus (except *S. profusus* Casey and *S. spretus* Dietz) show little sexual dimorphism in their rostra, and neither the genitalia nor the second funicular segment are

elongate. In other words, they exhibit little modification of the basic characteristics of the genus.

Discussion: During the early and middle parts of the Cenozoic Era, the climate of the larger land masses was tropical to temperate, with numerous low moist situations in the interior of the continents, according to texts on historical geology (e.g., Schuchert and Dunbar, 1941). Thus, conditions may have been favorable for the existence of the parasitic plant genus *Cuscuta* in many places where it does not occur at present, including the more northern portions of the Palearctic and Nearctic Regions. In addition, it is generally agreed by vertebrate paleontologists and others that the Old and the New Worlds were connected (probably at the Bering Isthmus) at various times in the Cenozoic Era. If *Cuscuta* species were in existence at some time between the Miocene and Pleistocene Epochs and served as hosts to the early species of *Smicronyx*, as in many modern species of *Smicronyx*, the conditions existing during at least part of that time probably would have favored the attainment of an almost world-wide distribution by both *Cuscuta* and *Smicronyx*. As noted above (pp. 192, 195), species of *Smicronyx* which breed in *Cuscuta* are known to exist in Europe, North Africa, India, North America, and South America. However, there are no known fossils of *Cuscuta* (Andrews, 1955) and there is thus no certainty that species of *Cuscuta* existed before Recent times.

Some of the species of the *Cuscuta*-breeding groups in subgenus *Smicronyx*, although widely separated geographically, bear a strong resemblance to each other. This is particularly true of the species of the *S. cinereus* group of western North America and several Palearctic species, which all resemble each other in respect to body form and proportions, prothoracic punctation, and elytral scale pattern. The resemblance has been seen through examination of *S. jungermanniae* (France, Germany), *S. coecus* (Hungary), and *S. angustus* (Algeria) and the drawings and descriptions in the revision of the Central European species of subgenus *Smicronyx* by Pericart (1957). The presence of the two very similar groups of species in the Nearctic and Palearctic Regions is difficult to explain without assuming a land connection between the two areas at some time after the origin of *Smicronyx*.

The Oligocene fossil *Smicronyx antiquus* (fig. 19), described by Förster (1891) from Brunstatt in Alsace, resembles some of the modern species of *Smicronyx*, including *S. cinereus* Motschulsky and *S. jungermanniae* Reich, in body form, prothoracic punctation, and size, but the diagnostic features of *Smicronyx* are either obscured or absent in the fossil, and therefore the latter cannot be held as definite evidence of the existence of *Smicronyx* in Oligocene times. However,

the work of Scudder (1893) has shown that a number of other presently existing genera of Curculionidae (e.g., *Anthonomus*, *Tychius*, *Apion*) are apparently represented by fossils in the Miocene shales at Florissant, Colorado.

II. Intermediates: This step involved the development of a few species (some of which still exist) which shared the general characteristics of subgenus *Smicronyx* but have a much longer, more tapered, polished rostrum in the female than in the male. *S. profusus* Casey is the best example of this (see figs. 21, 22). Of these species none is known to breed in *Cuscuta*.

Discussion: The species characterized above appear to be intermediate in form between the rest of subgenus *Smicronyx* and the species of subgenera *Pachyphanes*, *Pseudosmicronyx*, and *Desmoris*.

The various species of *Cuscuta*, which may have served as hosts to the early species of *Smicronyx*, probably parasitized a large variety of plants, as is true of many present species of *Cuscuta*. The adult weevils, although primarily associated with the *Cuscuta*, probably visited the flowers of the plants which supported the *Cuscuta* and the flowers of other plants nearby, and sometimes fed on the tender parts of those flowers. Possible examples of this are the records of *S. tychoides* LeConte and *S. sculpticollis* Casey taken on *Ambrosia* although both species are known to breed in *Cuscuta*. The reverse situation, i.e., species which are known to breed in some plant other than dodder but are occasionally found on dodder, is not known to occur. Feeding and egg laying are fairly closely associated activities in most female weevils (the female chews a cavity for each egg), and it seems possible that females of some of the early *Smicronyx* species occasionally oviposited by "mistake" in the flowers of some of the plants they visited. If the larvae hatching from the eggs laid in those flowers found the plants acceptable as food, they may well have completed their growth, pupated, and attained the adult stage.

A situation somewhat similar to the hypothetical one just described has been observed in nature. In a few recorded instances, the larvae of *Smicronyx sculpticollis* Casey, a species recorded many times as breeding in *Cuscuta*, have been found burrowing in the stems of certain composites on which *Cuscuta* was growing. (Further details are given below, in the discussion of the biology of *S. sculpticollis*.)

Because of these "mistakes" coupled with preimaginal conditioning, certain species could have developed alternate hosts, which they used occasionally instead of *Cuscuta*. Under the influence of selective pressure, the source of which is uncertain to the writer, some *Smicronyx* species may have come to live entirely on host plants which had formerly been only alternates to *Cuscuta*. These forms may have been ancestral to the species suggested to have developed in

this "step." However, further consideration of this possibility would be difficult without more information on the biology of the rest of the species in the subgenus *Smicronyx*, particularly such species as *S. halophilus* Blatchley, *S. lutulentus* Dietz, *S. lepidus* Dietz, and *S. vestitus* LeConte, which have been found associated with plants other than *Cuscuta*, but resemble the species which do breed in *Cuscuta*.

III. SUBGENERA *Pachyphanes*, *Pseudosmicronyx*, AND *Desmoris:* These subgenera could have developed through further modification of species or groups of species which developed in step II (see above). All three groups share the basic characteristics of the genus *Smicronyx* with the subgenus *Smicronyx*, but exhibit what are probably modifications of the characteristics of the latter group.

Species in these three subgenera have been found breeding in plants of a number of genera, particularly genera of Compositae, but are not known to breed in *Cuscuta*.

Discussion: The morphological changes which characterize the three American subgenera involve (a) the rostrum of the female, it being longer, smoother, and more tapered before the antennal insertions than in the male; (b) the genitalia (in *Pseudosmicronyx* and *Desmoris*), i.e., the ovipositor and associated parts being elongate and the male genitalia being usually elongate; (c) the second segment of the antennal funicle, which is now noticeably longer than the third segment. These changes all reach their extremes in subgenus *Desmoris* (figs. 34, 94, 140). However, in all three subgenera there are species in which one or more of the three main types of change has not gone very far. In the *scapalis* group of *Desmoris*, the median lobe of the male genitalia is not elongate (fig. 93). In subgenus *Pseudosmicronyx*, the female genitalia and second funicular segment of the *griseus* group show little elongation; in most species of the *ovipennis* and *abnormis* groups, the rostrum of the female is not very smooth or tapered before the antennal insertions. In subgenus *Pachyphanes*, the genitalia are much as in the typical subgenus (compare figs. 48, 50, 54, 73). Thus, while the subgenera show certain general tendencies away from subgenus *Smicronyx*, there are a number of points of interdigitation with that subgenus. Because of the overlap between those groups, they are treated here as subgenera rather than genera.

The three subgenera show the most modification in the body parts which are closely associated with oviposition. If there was a change in hosts, from species of *Cuscuta* to such a genus as *Helianthus*, it would have indicated a radical change in the accessibility of the oviposition site to the female weevil. The seed capsule of *Cuscuta* is rather exposed, but the achenes of tubuliflorous composites are usually beneath the long, closely spaced corollae of the disk flowers. It seems likely that

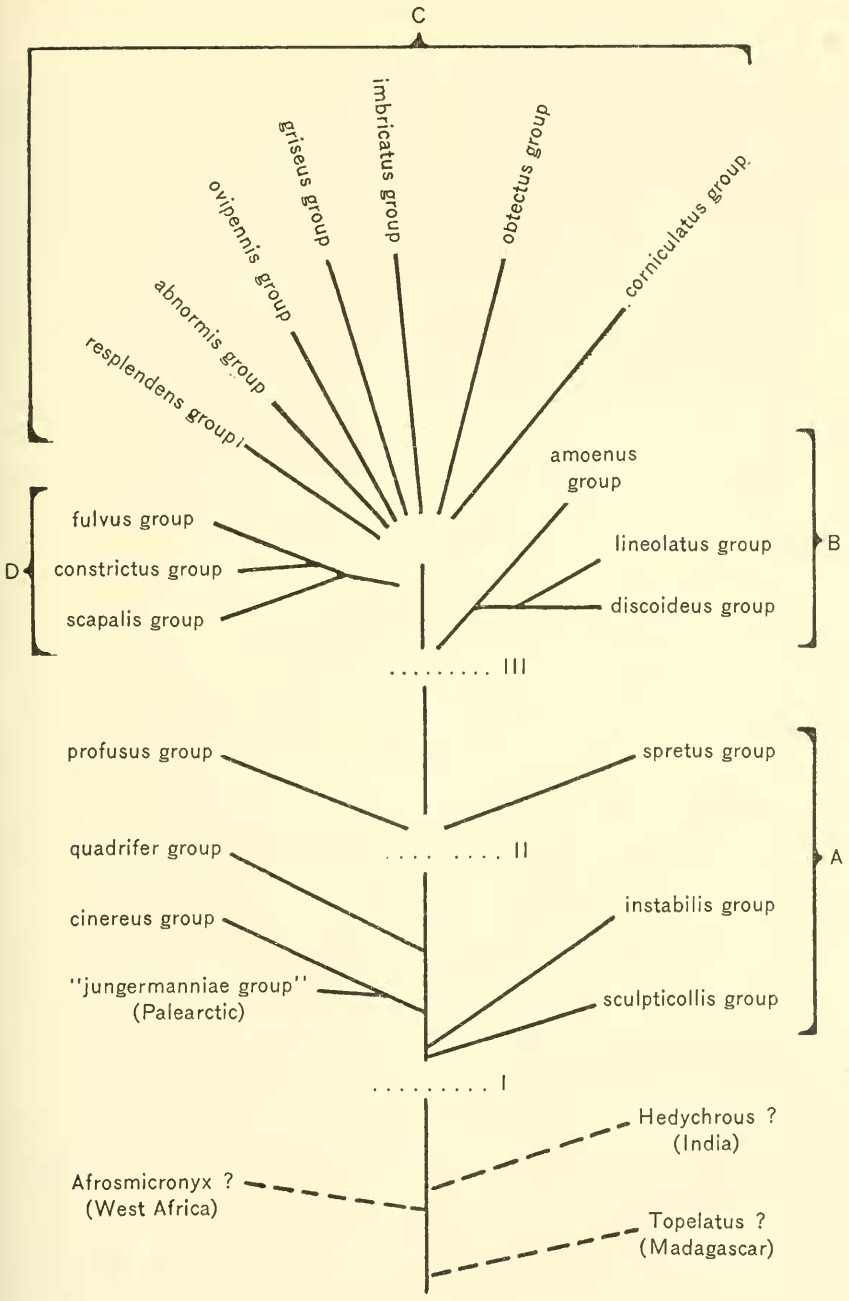

Diagram 1.—The apparent phylogenetic relationships among the groups of species of *Smicronyx* of America north of Mexico. The three important general changes or "steps" referred to in the text are indicated by Roman numerals I, II, and III. Capital letters indicate subgenera as follows: A, *Smicronyx*; B, *Pachyphanes*; C, *Pseudosmicronyx*; D, *Desmoris*.

this change in the structure of the host plants was the source of a great deal of the selective pressure which brought about the modifications of the rostrum, genitalia, and antennae of the subgenera as they evolved. If the last idea is correct, the oldest species groups of *Pachyphanes*, *Pseudosmicronyx*, and *Desmoris* should show the closest resemblance to subgenus *Smicronyx*. The branches of the evolutionary tree in diagram 1 on page 199 have been arranged in an attempt to show that relationship.

The reasons for the present placement of a given species group are presented in the discussion following the description of that group.

Genus *Smicronyx* Schoenherr, 1843

Micronyx Schoenherr, Genera et species curculionidum . . ., vol. 3, p. 423, 1836 (preoccupied by *Micronyx* Boisduval, 1835). Type species, by original designation: *Micronyx reichi* Gyllenhal, 1836.

Smicronyx Schoenherr, Genera et species curculionidum . . ., vol. 7, part 2, p. 313, 1843. Type species (ipso facto): *Micronyx reichi* Gyllenhal, 1836.

DESCRIPTION: Small species, smallest about 1.5 mm. and largest about 5.0 mm. in length. Covered, to a varying extent, with scales, which vary in size, shape, and color from one species to another. A few curled, setiform scales usually present on prothorax and elytra. Antennal funicles 7-jointed, first segment always longer than second segment (figs. 31–33). Antennal club 3-segmented, individual segments being difficult to distinguish, and entire surface of club covered with short hairs (figs. 31–33). Rostrum separated from rest of head by a fine, but distinct, constriction (figs. 3, 5, 7, 9). Outer faces of mandibles having an unusual lobed condition (figs. 44–46). Eyes coarsely faceted, transversely oval, widely separated dorsally on head, and separated below to a varying extent. Anterior margin of prothorax emarginate ventrally (figs. 2, 35–36) and postocular lobes distinct (figs. 3, 7, 12). Base of elytra wider than prothorax and humeri well developed (figs. 1, 6, 8). Scutellum small, but distinctly visible in all species except a few species of subgenus *Pachyphanes* (figs. 1, 6, 8).

Abdominal sterna unequal in length, third and fourth sterna much shorter than first, second, or fifth sterna (fig. 2). Forecoxae globular and contiguous, hind coxae transverse and widely separated (fig. 2). Femora unarmed and clavate (figs. 2, 4, 6). Tibiae all armed with a small hook or with a mucro at inner angle of their apices; fore and mid tibiae (and hind tibiae in some species) bear a row of stiff setae on inner side. First three segments of tarsus spongy pubescent beneath, third segment broader and bilobed, fourth segment bearing two claws, which are connate to a varying extent (figs. 39–42).

Male genitalia: Median lobe (or aedeagus) somewhat flattened dorso-ventrally, heavily sclerotized at sides and sometimes on the

dorsum, but not on apical portion of venter; median orifice flanked by two curved plates, the orificial plates; two struts, the median struts, attached at the anterior end of the median lobe, armature of the internal sac varying from small spines to heavy sclerites (fig. 48). Spiculum gastrale curved or hooked and/or expanded at anterior end; loosely connected with eighth sternum at posterior end (fig. 49). Tegmen ring shaped, encircles the median lobe; provided with a cleft dorsal cap piece, which extends posteriorly, and a single ventral strut, which extends anteriorly from the tegmen.

Female genitalia (fig. 102): Ovipositor widest at base, most heavily sclerotized at sides, two small styli present at apex; vagina usually entirely membranous, narrow near point of attachment with ovipositor, widened into a pouch anteriorly; spiculum ventrale (or eighth abdominal sternum) divided into two "arms" posteriorly, rodlike anteriorly; attached to mantle (eighth abdominal tergum) by a membranous connection; apex of mantle usually fringed with fine bristles. Spermatheca C-shaped, connected with vagina by a long duct and provided with an elongate gland, the spermathecal gland.

Forms included: A list follows of the subgenera, species groups, and species of *Smicronyx* in America north of Mexico. Page numbers refer to the present work; synonyms are given in parentheses following the valid name:

Subgenus *Smicronyx* Schoenherr (p. 203)
cinereus group (p. 204)
cinereus Motschulsky (p. 206)
(=*perplexus* Dietz)
pacificus, new species (p. 208)
tardus Dietz (p. 209)
cuscutiflorae Pierce (p. 211)
obscurus, new species (p. 213)
mucidus Dietz (p. 215)
(=*scalator* Dietz)
(=*cognatus* Dietz)
sculpticollis group (p. 216)
tychoides LeConte (p. 218)
sculpticollis Casey (p. 220)
(=*sagittatus* Casey)
(=*gibbirostris* Casey)
atratus Dietz (p. 224)
interruptus Blatchley (p. 225)
congestus Casey (p. 226)
seriatus LeConte (p. 228)
(=*elsegundinis* Pierce)
apionides Casey (p. 230)
vestitus LeConte (p. 232)
perfidus Dietz (p. 233)
fiducialis Casey (p. 234)
halophilus Blatchley (p. 235)
instabilis group (p. 237)
defricans Casey (p. 238)
(=*nubilus* Dietz)
(=*celaenus* Pierce)
posticus Dietz (p. 240)
instabilis Casey (p. 241)
silaceus Casey (p. 243)
pusillus Dietz (p. 244)
languidulus Dietz (p. 246)
rhodopus Dietz (p. 247)
quadrifer group (p. 248)
lutulentus Dietz (p. 249)
albonotatus, new species (p. 251)
quadrifer Casey (p. 253)
intricatus Casey (p. 254)
lepidus Dietz (p. 256)
profusus group (p. 257)
profusus Casey (p. 258)
spretus group (p. 259)
spretus Dietz (p. 260)
Subgenus *Pachyphanes* Dietz (p. 262)
amoenus group (p. 262)
amoenus (Say) (p. 264)

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convexus, new species (p. 266)
discoideus group (p. 268)
discoideus (LeConte) (p. 269)
(=*carus* (Dietz))
corpulentus LeConte (p. 271)
centralis (Dietz) (p. 273)
(=*lateralis* (Dietz))
lineolatus group (p. 275)
lineolatus Casey (p. 275)
triangularis (Dietz) (p. 277)
Subgenus *Pseudosmicronyx* Dietz (p. 279)
corniculatus group (p. 280)
corniculatus (Fahraeus) (p. 282)
(=*squamulatus* LeConte)
(=*spurcus* Casey)
(=*connivens* Casey)
(=*columbianus* Dietz)
(=*lanuginosus* Dietz)
(=*fallax* Dietz)
(=*fallaciosus* Klima)
perpusillus Casey (p. 286)
(=*minutissimus* Blatchley)
californicus Dietz (p. 287)
pallidus, new species (p. 288)
flavicans LeConte (p. 290)
(=*nebulosus* Dietz)
(=*ornatipennis* Dietz)
(=*maculatus* Dietz)
(=*dietzi* Klima)
immaculatus, new species (p. 292)
commixtus Dietz (p. 294)
(=*caseyi* Blatchley)
utilis Buchanan (p. 296)
obtectus group (p. 298)
obtectus LeConte (p. 299)
albidosquamosus Klima (p. 301)
(=*albosquamosus* Dietz)
(=*mackenziei* Sleeper)
imbricatus group (p. 302)
imbricatus Casey (p. 303)
(=*hornii* (Dietz))
ovipennis group (p. 305)
ovipennis LeConte (p. 306)
(=*sctulosus* Dietz)
tesselatus Dietz (p. 308)
(=*impressirostris* Dietz)
squalidus Casey (p. 310)
(=*cinerascens* Dietz)
(=*morio* Dietz)
abnormis group (p. 312)
abnormis Dietz (p. 313)
(=*parcus* Dietz)
griseus group (p. 314)
griseus LeConte (p. 315)
(=*picipes* Dietz)
pleuralis Dietz (p. 317)
resplendens group (p. 319)
resplendens Dietz (p. 320)
pusio LeConte (p. 321)
(=*rufulus* Dietz)
(=*wickhami* (Dietz))
Subgenus *Desmoris* LeConte (p. 322)
scapalis group (p. 323)
scapalis (LeConte) (p. 324)
constrictus group (p. 326)
constrictus (Say) (p. 328)
(=*pervisus* (Dietz))
pinguis Blatchley (p. 330)
sparsus Casey (p. 331)
(=*obesus* (Dietz))
fulvus group (p. 332)
fulvus LeConte (p. 334)
sordidus LeConte (p. 336)
(=*montanus* (Dietz))
humilis (Dietz) (p. 339)
compar (Dietz) (p. 340)
floridanus (Dietz) (p. 342)
incertus (Dietz) (p. 343)
(=*rusticus* Dietz)
(=*vitiosus* Dietz)
rectirostris Blatchley (p. 345)
Unrecognized species (p. 346)
fraterculus Dietz

Key to North American Subgenera of *Smicronyx* [2]

1. Second and third joints of antennal funicle subequal (fig. 31); antecoxal ridges of prothorax usually fairly distinct (fig. 2), tarsal claws connate to near middle and nearly parallel (fig. 39) . . . . . **Smicronyx** (p. 203)

   Second joint of antennal funicle distinctly longer than third joint (figs. 32–34); antecoxal ridges of prothorax not distinct (figs. 35–37); tarsal claws connate near their bases, usually divergent (figs. 40–42) 2

2. Body form very robust (fig. 4); rostrum usually strongly curved (fig. 5); antennal club large, distinct from funicle at base (fig. 32). **Pachyphanes** (p. 262)

   Body form moderately robust at most (figs. 6, 8, 23); rostrum only moderately arcuate or straight; antennal club not as large and distinct (figs. 33–34) . 3

3. Rostrum of male almost straight (fig. 9); rostrum of female much longer, polished, and with antennae inserted well behind the middle (figs. 10, 29) or, if antennae are near middle, rostrum nearly straight (fig. 10). **Desmoris** (p. 322)

   Rostra of both sexes moderately arcuate; rostrum of female not much longer than that of male and with antennae inserted at or only slightly behind middle (figs. 24, 25) . . . . . **Pseudosmicronyx** (p. 279)

Subgenus *Smicronyx* Schoenherr, 1843

Micronyx Schoenherr, Genera et species curculionidum . . ., vol. 3, p. 423, 1836 (preoccupied by *Micronyx* Boisduval 1835). Type species, by original designation: *Micronyx reichi* Gyllenhal, 1836.

Smicronyx Schoenherr, Genera et species curculionidum . . ., vol. 7, part 2, p. 313, 1843. Type species (ipso facto) *Micronyx reichi* Gyllenhal, 1836.

Description: Rostrum curved, stouter and slightly shorter in male than in female; antennae inserted close to middle in female and well ahead of middle in male (figs. 12, 14–15). Second and third segments of antennal funicle subequal (fig. 31). Antennal club not suddenly distinct from funicle (fig. 31). External lobes of the mandibles moderately developed (fig. 44). Prosternum emarginate at anterior margin and concave (fig. 2). Outer side of prosternal sutures raised to form antecoxal ridges (fig. 2). Humeri prominent and scutellum distinct (figs. 1, 11, 13, 16, 20). Tarsal claws connate for almost half their length (fig. 39). Median lobe of male genitalia short (rather elongate in *S. spretus* Dietz), often broadened toward apex (figs. 50–71). Arms of spiculum ventrale of the female genitalia forming a U (as in fig. 105), not a V (as in fig. 102).

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[2] The key will not be completely effective unless it is used in conjunction with the descriptions of the subgenera and with the figures indicated. The reader should also be warned here that the *S. ovipennis* group (subg. *Pseudosmicronyx*) approaches the subgenus *Pachyphanes* in body form (see fig. 26), and that the tarsal claws of that group and of *S. centralis* (Dietz) (subg. *Pachyphanes*) resemble those of the subgenus *Smicronyx*. The apical spur of the hind tibia is usually straight in the subgenus *Desmoris*, and is usually curved upward in the subgenera *Smicronyx* and *Pseudosmicronyx*, but it is not always as distinctly curved or straight as indicated in the key by Dietz (1894).

HOST PLANTS: With certain exceptions, the known host plants of species in this subgenus are species of *Cuscuta* (dodder). Some species which probably do not breed in *Cuscuta* are *S. lutulentus* Dietz, *S. profusus* Casey, and *S. halophilus* Blatchley.

DISTRIBUTION: Species placed in this subgenus are known to occur in North America, South America (three described species), Europe, Asia, and Africa.

Key to the Species Groups of Subgenus *Smicronyx*

1. Size very large, almost always over 3.5 mm. in length, sides of prothorax subparallel for over half their length (fig. 20); rostrum of female smooth, elongate, and polished before antennal insertions (fig. 22). **profusus** group (p. 257)
   Size smaller, almost always less than 3.0 mm. in length, sides of the prothorax usually rounded, not subparallel, rostrum of female not smooth, elongate, and polished before antennal insertions (figs. 3, 14) 2
2. Setiform scales of prothorax and elytra large and conspicuous. **quadrifer** group (p. 248)
   Setiform scales of prothorax and elytra not contrasting conspicuously with rest of scales 3
3. Rostrum distinctly unicarinate or bicarinate medially in both sexes 4
   Rostrum not medially carinate (striate at the most) in either sex 5
4. Prothorax marked with a broad and complete median stripe of white scales; male genitalia as in figure 71; rostrum of female tapered and shining before antennal insertions (fig. 18) . . . . . **spretus** group (p. 259)
   Prothorax never marked with a median white stripe; male genitalia not as in figure 71; rostrum of female not tapered or shining before antennal insertions . . . . . **cinereus** group (p. 204)
5. Prothorax deeply punctate and/or sculptured, the scales of elytra in transverse bands, fasciae or scattered patches (except in *S. vestitus* LeConte and *S. halophilus* Blatchley) . . . . . **sculpticollis** group (p. 216)
   Prothorax not deeply punctate or sculptured; scales of elytra fairly evenly distributed . . . . . **instabilis** group (p. 237)

SMICRONYX CINEREUS GROUP

DESCRIPTION: Body oblong-ovate, moderately stout (fig. 11). Rostrum stout, moderately curved (fig. 12), carinate dorsally. Prothorax moderately rounded on sides, narrowed and constricted toward apex; disk deeply, evenly, and usually closely punctate (fig. 11). Elytra slightly wider behind middle than at base, setiform scales small, declivities distinct (fig. 11). Median lobe of male genitalia fairly short, lightly sclerotized dorsally, broader at apex than at base (except in *S. cuscutiflorae* Pierce), spines of internal sac never large and conspicuous (figs. 50–52).

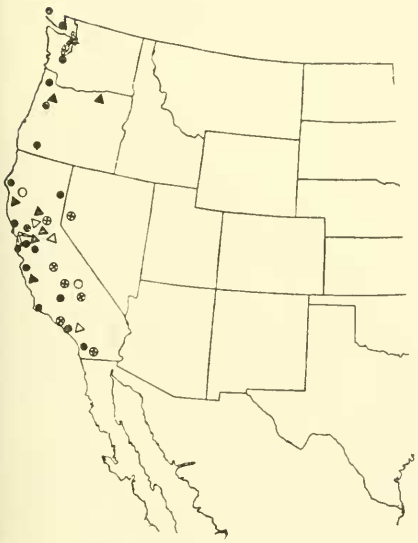
DISCUSSION: The species in this group seem to be the best example of the basic characteristics of subgenus *Smicronyx*. The other groups show some modification of these basic characteristics (or at least differ from the basic plan in some way) and may be distinguished from

the *cinereus* group on the basis of those differences. The *instabilis* group, which is similar to the *cinereus* group in other respects, differs from the latter in having a pair of sclerotized structures on the internal sac of the median lobe of the male genitalia. In addition to the differences given in the key above, the species of the *sculpticollis* group have larger, more conspicuous spines on the internal sac of the male genitalia than have the species of the *cinereus* group (see figs. 53–61). The male genitalia of the *spretus* group differ from those of the *cinereus* group in having a heavily sclerotized dorsum, and a dense group of spines on the internal sac (fig. 71). The *quadrifer* and *profusus* groups may be best distinguished from the *cinereus* group by the characters given in the key.

Map 1 gives the distribution of this group.

Key to the Species of the *Smicronyx cinereus* Group

1. Elytral surface entirely black or piceous (in fully colored specimens). 2
   Elytral surface at least partly reddish 4
2. Scales of all body parts white or very light gray, sparsely distributed on thorax and elytra; antennal club always light rufous.
   S. pacificus, new species (p. 208)
   Scales of most body parts some shade of brown, with a scattering of white; antennal club piceous or brownish 3
3. Lateral patch of white scales on prothorax extending from base to apex; rostrum of the female punctate but not carinate before the antennal insertions . . . . . **S. mucidus** Dietz (p. 215)
   Lateral patch of white scales represented by a few white scales at base of prothorax, but absent otherwise; rostrum of both sexes carinate before the antennal insertions . . . . . **S. cinereus** Motschulsky (p. 206)



Map 1.—Distribution of specimens examined of the *cinereus* group of *Smicronyx*. ●, *S. cinereus*; △, *S. tardus*; ○, *S. mucidus*; ⊕, *S. cuscutiflorae*; ▲, *S. obscurus*; ★, *S. pacificus*.

4. Sides of prothorax subparallel from base to point at which they converge toward apex; scales of prothoracic disk oriented toward the midline; antennal club reddish brown . . . . . **S. cuscutiflorae** Pierce (p. 211)

   Sides of prothorax distinctly rounded behind the point of convergence; scales of the prothoracic disk oriented toward the apex; antennal club black to piceous 5

5. Reddish area of each elytron confined to a vitta, which extends from the base to near the declivities along intervals 4 to 6; scales of underside light gray. **S. obscurus** new species (p. 213)

   Reddish area of each elytron rather general, covering all but a broad dark sutural stripe and the outside margins; scales of underside distinctly brown. **S. tardus** Dietz (p. 209)

Smicronyx cinereus Motschulsky

FIGURES 11–12, 50, 103

Micronyx cinereus Motschulsky, Bull. Soc. Imp. Nat. Moscou, vol. 18, no. 2, p. 376, 1845. Type: Sex unknown, California; supposed in Univ. of Moscow Museum collection, but could not be found at that institution.

Smicronyx perplexus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 138, 139, pl. 7, fig. 12, 1894. New synonymy. Lectotype, here designated: Female, "Cal."; Carnegie Museum (Ulke collection).

DESCRIPTION: Rostra of both sexes black, moderately curved, stout, distinctly carinate medially and laterally, rugosely punctate, closely squamose dorsally and laterally from base to near apex; only slightly smoother before antennal insertion in female than in male. Head black; punctulate, thinly squamose in front. Antennae piceous throughout; club elongate oval and silvery pubescent. Prothorax black, moderately rounded at the sides, narrowed and slightly constricted near apex, disk evenly covered with deep punctures, interspaces shining; scales ovate, mostly medium yellowish brown, but a few white, condensed into a poorly defined white spot on each side of the disk. Setiform scales medium brown.

Elytra black, intervals covered with ovate scales of same colors as those on thorax, but with white scales scattered among the brown. Femora piceous, moderately clavate, covered with yellowish brown elliptical scales. Tibiae stout, piceous, covered with elongate yellow-brown scales. Tarsi black, densely covered with yellowish brown scales; third segment not much broader than first two; fourth segment extending well beyond third; claws connate for approximately half their length; slightly divergent. Median lobe as in group description but widened toward the apex, internal sac armed with fine spines (fig. 50). Stem of the spiculum ventrale of female genitalia slightly expanded at the anterior end (fig. 103).

MEASUREMENTS: The following measurements were taken from 5 males from Contra Costa Co., Calif. (CNHM), 1 male from Alhambra Valley, Contra Costa Co., Calif. (CAS) plus 4 males and 10 females

from Vine Hill, Contra Costa Co., Calif. (CAS). All measurements in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	2. 64	0. 110	2. 50–2. 80	2. 70	0. 080	2. 50–2. 90
Elytra length	1. 81	0. 087	1. 65–1. 98	1. 85	0. 141	1. 52–2. 01
Elytra width at base	1. 02	0. 066	0. 86–1. 09	1. 04	0. 077	0. 86–1. 09
Prothorax length	0. 65	0. 047	0. 59–0. 69	0. 65	0. 047	0. 56–0. 69
Prothorax width	0. 72	0. 047	0. 63–0. 76	0. 75	0. 057	0. 63–0. 83
Rostrum length	0. 87	0. 033	0. 79–0. 92	0. 94	0. 057	0. 83–0. 100
Rostrum length before antennal insertion	0. 28	0. 033	0. 26–0. 30	0. 34	0. 018	0. 30–0. 36
Funicular segment 2 length	0. 051			0. 053		0. 034–0. 068
Funicular segment 3 length	0. 051			0. 049		0. 034–0. 051

Biology: There is very little information available on the biology of this species. Tilden (1951) reported taking a specimen of *S. cinereus* from the foliage of *Baccharis pilularis* De Candolle in California, but he gave no other information.

Discussion: It is unfortunate that the type specimen or series was not available for examination or comparison, but A. Zhelokovtsec of the University of Moscow Zoological Museum stated (in a letter to Dr. H. Dietrich of Cornell University) that the type of *S. cinereus* could not be located in the Motschulsky collection or in the Eschscholtz collection (which was mentioned in the original description). Further search may reveal that Motschulsky placed the types in some other collection or that in some way they became located at another museum in Russia. The present interpretation of this species follows that of LeConte (1876), Casey (1892), and Dietz (1894).

The lectotype of *S. perplexus* Dietz is evidently conspecific with *S. cinereus* Motschulsky and the former has been placed in synonymy with the latter.

Distribution: Records taken from the material examined indicate that *S. cinereus* may be found in the Pacific mountain system, primarily in valley regions. The specimens examined are as follows:

British Columbia: Gordon Head, Aug. 17 (CNC); Victoria, May 15 (CNC). California: alameda co.: March 26 and 29, April 13, May 2 and 10, June 4, Sept. 25, Oct. 8 (CNHM), July (CAS); Arroyo Valle, March 15 (USNM); Berkeley, April 11 (CNHM), March 25, April 10 (USNM); Hills back of Oakland, March 26–27, June 5 (USNM); Piedmont, Feb. 27 (CNHM); Pleasanton, April 28 (USNM). contra costa co.: April 12, May 23 (CNHM); Alhambra Valley, July (CAS); Vine Hill, June 7, Dec. 28 (CAS). humboldt co.: May 20 (CNHM); Eel River near Hartsooks, June (USNM); Redwood Creek, June 5 (CNHM). kern co.: Bakersfield, May 5 (USNM); Glennville, May 7 (USNM). lassen

CO.: May 31 (CAS). LOS ANGELES CO.: Pasadena, Feb. (CAS). MARIN CO.: May 15 (CNHM); Lagunitas, April 25 (CAS); Mill Valley, March 7, June (CAS); Redwood Canyon, May 14, June 14 (CAS); Muir Woods, May 24 (CAS); Ross, April 28 (CU, CAS); Saucelito, April 26 (CAS). MONTEREY CO.: Pacific Grove, June 4 (CAS). SAN DIEGO CO.: Poway (CAS). SAN MATEO CO.: Crystal Lake, May 16, June 27 (CAS). SANTA BARBARA CO.: Santa Rosa Island, April 27 (USNM). SOLANO CO.: Vacaville (CNHM). SONOMA CO.: May 19 (CNHM).

OREGON: BENTON CO.: Corvallis, May 2, May 26 (USNM), May 18 (CAS). JACKSON CO.: May 2 (USNM). WASHINGTON CO.: Forest Grove, March 31, May 13 (USNM).

WASHINGTON: THURSTON CO.: Grand Mound, April 9 (USNM).

Total specimens examined: 128.

Smicronyx pacificus, new species

FIGURES 148, 153

DESCRIPTION: Rostrum black, rather stout in both sexes, surface shining before antennal insertions; rough, coarsely alutaceous behind the antennal insertions, four thin dorsal carinae present, but not reaching the apex or the base; punctures fine, distinct between the carinae, but coarse, less distinct toward the base; scales grayish white, thinly distributed over rough dull area toward base. Head black, coarsely alutaceous. Antennae piceous except for club, which is pale rufous, scales narrow, grayish white. Prothorax black, broadly rounded at the sides, narrowed and slightly constricted toward apex; punctures of disk deep, closely spaced but never confluent, usually subcircular in shape; scales rather small, grayish white, and thinly distributed.

Elytra black to piceous in fully colored specimens (many specimens seen have more reddish elytra, but apparently are teneral specimens); intervals thinly covered with small, ovate, grayish white scales, in addition to the usual single row of recumbent setiform scales on each interval. Underside of thorax and abdomen black, closely covered with white, broadly ovate scales. Femora ferrugino-piceous (black at bases), thinly covered with elongate whitish scales. Tibiae stout, same color as femora, covered with rows of linear, grayish white scales. Tarsi rufopiceous, first three segments broad, densely covered with elliptical whitish scales; fourth segment projecting beyond the third by approximately the length of the latter, claws connate for slightly more than half their length, nearly parallel. Male and female genitalia typical of the *cinereus* group (see figs. 50–52), but median lobe of male genitalia not as distinctly broadened toward the apex as in *S. cinereus* (fig. 50).

Measurements: The following measurements were taken from 8 males and 8 females from Friday Harbor, Washington, July 8 (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 28	2. 10–2. 50	2. 31	2. 10–2. 50
Elytra length	1. 53	1. 40–1. 60	1. 59	1. 40–1. 70
Elytra width at base	0. 93	0. 83–1. 06	0. 92	0. 86–1. 00
Prothorax length	0. 55	0. 49–0. 59	0. 57	0. 53–0. 63
Prothorax width	0. 67	0. 59–0. 73	0. 69	0. 63–0. 73
Rostrum length	0. 75	0. 66–0. 83	0. 81	0. 73–0. 86
Rostrum length before antennal insertion	0. 22	0. 20–0. 26	0. 28	0. 26–0. 30
Funicular segment 2 length	0. 053	0. 051–0. 068	0. 060	0. 051–0. 068
Funicular segment 3 length	0. 040	0. 034–0. 051	0. 045	0. 034-0. 051

Holotype: Male, USNM 65407

Type locality: Friday Harbor, Washington. Collected by W. W. Baker on July 8, 1943.

Paratypes: 7 males and 8 females from Friday Harbor, Washington; all collected with the holotype; all tentatively placed in the collection of the U.S. National Museum.

Biology: All of the specimens in the type series were labeled "*Cuscuta salina* (?)." Otherwise, there is no information available on the biology of this species.

Discussion: This species resembles *S. cinereus* Motschulsky in size and in shape of the body parts, but differs from that species in several respects. In *S. pacificus*, all of the scales are white or grayish white, the antennal club is a pale rufous, the rostral carinae are rather thin and obscure, and the median lobe of the male genitalia is only slightly broadened toward the apex. In *S. cinereus*, there are brownish scales on the body surface, including the underside, the antennal club is usually brownish or piceous, and the rostral carinae are fairly prominent. In addition, the elytra of *S. pacificus* are slightly more convex than those of *S. cinereus*.

Smicronyx tardus Dietz

Figure 151

Smicronyx tardus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 139–140, 1894. Type: Male, California, Academy of Natural Sciences, Philadelphia 2913 (Horn collection).

Description: Rostra of both sexes rufopiceous, stout, moderately curved, squamose, rugosely punctate and singly carinate behind an-

tennal insertions; 4–6 thin carinae running from antennal insertions nearly to the apex in male; punctate but not carinate before antennal insertions in the female. Head black, finely rugulose, sparsely squamose in front. Antennae rufopiceous throughout. Prothorax black, broadly rounded at the sides, moderately narrowed and slightly constricted toward the apex; disk closely and deeply punctate; scales ovate and elliptical, yellowish brown, except for a few small patches of white scales toward the sides of the disk; prosternum moderately emarginate and concave.

Elytra ferruginous except for a black sutural stripe and black outer margins; intervals covered with ovate, subtruncate scales, mostly yellowish brown, a scattered few white. Underside of the thorax and abdomen black, closely covered with ovate yellowish brown scales. Femora rufopiceous to ferruginous, moderately clavate, covered with elongate and elliptical pale yellowish brown scales. Tibiae rufopiceous, covered with linear, light yellowish brown scales. Tarsi piceous; third segment distinctly broader than first two; fourth segment extending well beyond third; claws nearly parallel, connate to near the middle.

MEASUREMENTS: The following measurements were taken from 2 males and 1 female from Azusa, Calif. (CAS), a male from Kaweah, Calif. (CAS), a female from Folsom, Calif. (USNM), and a female from Mokelumne Hill, Calif. (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 40	2. 30–2. 70	2. 50	2. 30–2. 70
Elytra length	1. 61	1. 60–1. 90	1. 70	1. 60–1. 90
Elytra width at base	1. 00	0. 93–1. 06	1. 03	0. 90–1. 13
Prothorax length	0. 66	0. 60–0. 73	0. 65	0. 60–0. 70
Prothorax width	0. 73	0. 63–0. 80	0. 71	0. 66–0. 76
Rostrum length	0. 84	0. 83–0. 90	0. 88	0. 83–0. 93
Rostrum length before antennal insertion	0. 25	0. 23–0. 26	0. 32	0. 30–0. 33
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 051		0. 051	

BIOLOGY: No information is available on the biology of this species.

DISCUSSION: *S. tardus* and *S. cuscutiflorae* Pierce can be separated by the characters given in the key on p. 205, and when the two species are compared it can be seen that the rostrum of *S. cuscutiflorae* is straighter and stouter than that of *S. tardus*. In addition, the elytra of *S. cuscutiflorae* are distinctly wider behind the middle than at the base, while the elytra of *S. tardus* are subparallel at the sides.

DISTRIBUTION: The few records from the material examined indicate that this species may be found in the California Valley region of the Pacific mountain system. The specimens examined are as follows:

CALIFORNIA: CALAVERAS CO.: Mokelumne Hill, March (CAS). LOS ANGELES CO.: Azusa, April, July (CAS); no data (USNM). SACRAMENTO CO.: Folsom, Sept. 8 (USNM). TULARE CO.: Kaweah (CAS).
Total specimens examined: 10.

Smicronyx cuscutiflorae Pierce

FIGURE 51

Smicroynx cuscutiflorae Pierce, Bull. Southern California Acad. Sci., vol. 38, pp. 48–50, pl. 12, figs. A–B, 1939. Holotype: Female, El Segundo, California, May 18, 1938 (collected by W. D. Pierce, C. Pierce, and D. Pool), Los Angeles Co. Museum.

DESCRIPTION: Rostra of both sexes stout, piceous, slightly curved, rugosely punctate from base to apex, multicarinate behind antennal insertions; basal tufts of scales distinct; slightly longer and less strongly punctate before antennal insertions in female than in male. Head black to piceous, finely alutaceous, not shining, sparsely squamose in front. Antennae piceous; scales light tan, elongate elliptical. Prothorax black, nearly parallel at sides, suddenly narrowed and slightly constricted near apex; disk evenly covered with subangular punctures; scales both elongate and elliptical, yellowish brown throughout; prosternum moderately emarginate, slightly concave.

Elytra rufous, except for sutural stripe and outer margins, which are piceous; intervals covered with elliptical scales, some medium yellowish brown, others white, the proportion of each varying from one specimen to another. Underside of thorax and abdomen black, covered with a mixture of ovate and elongate light grayish brown scales. Femora moderately clavate, covered with elongate and elliptical pale yellowish brown scales. Tibiae rufopiceous, covered with elongate scales similar in color to those of femora. Tarsi piceous, densely covered with linear brownish yellow scales; first three segments short and broad; third segment only slightly broader than first two, the fourth segment considerably exceeding third. Median lobe of male genitalia rounded at apex; sides subparallel; spiculum gastrale hooked at the anterior end (fig. 51).

MEASUREMENTS: The following measurements were taken from 1 male and 3 females from Azusa, Calif. (CAS), 3 males from Los Angeles Co, Calif. (USNM), 1 male and 1 female from Poway, Calif.

(CAS), 2 females from Ahwahnee, Calif. (CAS), 1 male from Davis, Calif. (USNM), 1 male from Pasadena, Calif. (CAS), 1 female from San Bernardino, Calif. (CAS), and 1 female from Kernville, Calif. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 20	2. 0–2. 50	2. 32	2. 10–2. 50
Elytra length	1. 50	1. 30–1. 60	1. 58	1. 40–1. 70
Elytra width at base	0. 91	0. 86–0. 96	0. 94	0. 86–1. 03
Prothorax length	0. 56	0. 53–0. 63	0. 57	0. 53–0. 63
Prothorax width	0. 61	0. 56–0. 66	0. 64	0. 60–0. 70
Rostrum length	0. 78	0. 73–0. 83	0. 83	0. 73–0. 86
Rostrum length before antennal insertion	0. 24	0. 20–0. 26	0. 33	0. 30–0. 36
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 051		0. 051	

BIOLOGY: Pierce (1939) reported collecting this species from *Cuscuta californicus* on the sand dunes at El Segundo, California on May 18, June 15, and June 19, 1938. Adults were bred from the seed capsules on July 18–21, 1938. Adults were again collected on the *Cuscuta* on February 25, 1939. Concerning the immature stages, Pierce stated: "This weevil breeds in the ovaries of the dodder, causing a slight gall-like swelling," and, "The larvae are bright orange color and quite active crawlers, so that it is possible that some may enter the ground for pupation, but orange-colored pupae were found in the flowers."

DISTRIBUTION: Present records indicate that *S. cuscutiflorae* may be found in the Pacific mountain system, chiefly in valley regions in California. There is one record (Reno, Nev.) from the Sierra Nevada region. The specimens examined are as follows:

CALIFORNIA: KERN CO.: Kernville, May 6 (USNM). LOS ANGELES CO.: Azusa, June, July 30 (CAS), El Segundo, May 18, June 13 and 15 (paratypes, Los Angeles County Museum); Pasadena, April (CAS). MADERA CO.: Ahwahnee, May (CAS). SAN BERNARDINO CO.: San Bernardino, May 13 (CAS). SAN DIEGO CO.: Poway (CAS). YOLO CO.: Davis, May 13 (USNM).

NEVADA: WASHOE CO.: Reno, July (USNM).

Total specimens examined: 29.

Smicronyx obscurus, new species

FIGURES 52, 104

DESCRIPTION: Rostra of both sexes piceous, slightly curved, punctate from base to apex, sparsely squamose behind the antennae;

carinate in the males, subcarinate in the females. Head black, bearing a patch of light brownish scales on front. Antennae piceous, club elongate ovate and entirely pubescent. Prothorax black, broadly rounded at sides, narrowed and slightly constricted at apex; covered with elongate-oval scales, oriented toward apex and light brown, with exception of a small patch of white scales at base near midline and an elongate patch of white scales on each side; disk evenly but not closely punctate, interspaces shining; prosternum shallowly concave, antecoxal ridges distinct.

Elytra black to piceous at base and along suture, rufous toward sides (on fourth to sixth intervals); covered with elongate-oval scales, light brown except for a few scattered white scales. Scales of underside of thorax and abdomen light gray, similar to elytral scales in shape and size. Femora moderately clavate; rufous except for piceous bases; covered with light brown elongate-oval scales. Tibiae rufopiceous, covered with linear light brownish scales. Tarsi piceous, fourth segment extending well beyond the third; claws connate for a short distance beyond their base and slightly divergent. Median lobe of the male genitalia only slightly broadened toward apex; spiculum gastrale slender, curved, somewhat hooked at anterior end (figure 52). Arms of the spiculum ventrale of the female genitalia forming a rather elongate U, curved inward toward each other near their middle; anterior end of the stem markedly expanded (figure 104).

Measurements: The following measurements were taken from 10 males and 10 females collected at Woodland, California, May 11, 1933 (USNM). All measurements are in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	2. 23	0. 21	1. 91–2. 60	2. 42	0. 19	2. 24–2. 70
Elytra length	1. 58	0. 11	1. 38–1. 68	1. 68	0. 11	1. 55–1. 89
Elytra width at base	0. 86	0. 07	0. 76–0. 96	0. 92	0. 06	0. 89–1. 06
Prothorax length	0. 56	0. 033	0. 49–0. 63	0. 62	0. 033	0. 59–0. 69
Prothorax width	0. 63	0. 05	0. 56–0. 73	0. 68	0. 033	0. 66–0. 76
Rostrum length	0. 85	0. 07	0. 76–0. 96	0. 98	0. 05	0. 92–1. 09
Rostrum length before antennal insertion	0. 35	0. 05	0. 26–0. 40	0. 47	0. 033	0. 43–0. 49
Funicular segment 2 length	0. 058		0. 051–0. 068	0. 051		
Funicular segment 3 length	0. 051			0. 051		

HOLOTYPE: Male, USNM 65404

TYPE LOCALITY: Contra Costa Co., California. Type collected October 25, 1911, by Frank E. Blaisdell.

PARATYPES: 1 female, Contra Costa Co., Calif., Oct. 11, 1911, F. E. Blaisdell (CU); 2 males, 2 females, Vine Hill, Contra Costa Co., Calif., July 1912, F. E. Blaisdell (CAS); 1 female, Vine Hill, Contra Costa Co., Calif., Nov. 25, 1910, F. E. Blaisdell (CAS); 14 males, 9 females, Woodland, Calif., May 13, 1933, E. C. Zimmerman (USNM).

BIOLOGY: No host-plant data or other biological information on this species is presently available.

DISCUSSION: *Smicronyx obscurus* bears a strong resemblance to *S. cinereus* Motschulsky and to *S. tardus* Dietz in body form, size, prothoracic punctation, and male genitalia, but may be distinguished from the latter two species by its rostrum, which is less curved and is longer before the antennal insertions than in *S. cinereus* and *S. tardus*. The spiculum ventrale of the female of *S. obscurus* is distinctive in having arms which are more elongate and less strongly elbowed than the arms of that structure in the other species of the *cinereus* group (compare figs. 103–104).

The results of some F comparisons between *S. obscurus* and *S. cinereus* Motschulsky are given below; $n=10$ in all samples. A single asterisk indicates an F value significant at the 5 percent level; a double asterisk indicates an F value significant at the 1 percent level:

	F values	
	Males	*Females*
Body length	11. 30**	5. 01*
Elytra length	10. 37**	6. 05*
Elytra width at base	10. 81**	7. 16*
Prothorax length	1. 36	1. 65
Prothorax width	8. 28*	6. 46*
Rostrum length	0. 73	2. 45
Rostrum length before antennal insertion	8. 07*	16. 80**

DISTRIBUTION: Present locality records indicate that this species is to be found in the Pacific mountain system in California and Oregon, primarily in valley regions. The specimens examined are as follows:

CALIFORNIA: CONTRA COSTA CO.: Oct. 25 (CU), Vine Hill, July, Nov. 25 (CAS). MENDOCINO CO.: Willits, May 24 (CAS). MONTEREY CO.: Pacific Grove, Sept. 12 (CAS). SACRAMENTO CO.: Sacramento, June 2 (USNM). YOLO CO.: Woodland, May 11, 13, 19, June 1 (USNM).

OREGON: BENTON CO.: Corvallis, July 9 (USNM). MORROW CO.: Willamette Valley, Feb. 5 (USNM).

Total specimens examined: 72.

Smicronyx mucidus Dietz

FIGURE 152

Smicronyx mucidus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 138, 1894. Lectotype, here designated: Female, Washington Territory, MCZ 1898 (Dietz collection).

Smicronyx scalator Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 147, 1894. New synonymy. Lectotype, here designated: Male, "Cal.," MCZ 1905 (Dietz collection).

Smicronyx cognatus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 144, Pl. 7, figure 13, 1894. Lectotype, here designated: Male, Nevada, MCZ 1901 (Dietz collection).

DESCRIPTION: Rostra of both sexes black, moderately curved, rugulosely punctate behind antennal insertions; unicarinate dorsally behind antennal insertion in female, bicarinate near the antennal insertions in male; noticeably more polished and more sparsely punctate in female than in male. Head black, finely punctate, thinly squamose above base of rostrum. Antennae black throughout. Prothorax black, broadly rounded at sides, strongly narrowed and slightly constricted near apex; disk closely and deeply punctate, the interspaces shining; scales broadly elliptical, white along sides and in a short median vitta at base, the rest medium brown; prosternum moderately emarginate, and concave.

Elytra black to piceous; intervals covered with small, broadly ovate scales, mostly yellowish brown, but some white, the white scales condensed at sides in some specimens. Femora rufopiceous, covered with both white and yellowish brown elongate-oval scales.

Tibiae rufopiceous, covered with white and yellowish brown linear scales. Tarsi black; third segment distinctly broader than first two; fourth segment extending considerably beyond third; claws small, connate for approximately half their length, slightly divergent.

MEASUREMENTS: The following measurements were taken from the lectotype (a female), 1 male from Sequoia National Park, Calif. (USNM), and 2 females from Island Mountain, Calif. (USNM). All measurements are in millimeters:

	Male	*Females*	
		Mean	*Extremes*
Body length	3. 00	3. 20	3. 10–3. 40
Elytra length	2. 10	2. 15	2. 00–2. 40
Elytra width at base	1. 23	1. 27	1. 20–1. 32
Prothorax length	0. 70	0. 78	0. 73–0. 83
Prothorax width	0. 91	0. 91	0. 80–1. 00
Rostrum length	1. 00	1. 12	1. 10–1. 13
Rostrum length before antennal insertion	0. 30	0. 44	0. 40–0. 50
Funicular segment 2 length	0. 068	0. 068	
Funicular segment 3 length	0. 051	0. 051	

BIOLOGY: There is no information available at present on the biology of this species.

DISCUSSION: *S. mucidus* resembles *S. cinereus* Motschulsky rather closely in body shape and proportions, body color, and prothoracic punctation, but *S. mucidus* is slightly larger than *S. cinereus*, has an elongate patch of white scales on each side of the prothorax (not true of *S. cinereus*), and the rostrum of the female is noncarinate before the antennal insertions in *S. mucidus* (not true of *S. cinereus*).

The lectotype specimens of *S. mucidus* Dietz, *S. scalator* Dietz, and *S. cognatus* Dietz resemble each other so closely in all respects that it is difficult for the writer to be at all confident that they represent distinct species. Therefore the names *Smicronyx scalator* Dietz and *Smicronyx cognatus* Dietz have been placed in synonymy with *Smicronyx mucidus* Dietz.

DISTRIBUTION: The few existing records indicate that *S. mucidus* may be found in the Pacific mountain system at intermediate elevations. The specimens examined are as follows:

CALIFORNIA: TRINITY CO.: Island Mountain, May 14 (USNM). TULARE CO.: Sequoia National Park, March (USNM).

Total specimens examined: 3.

SMICRONYX SCULPTICOLLIS GROUP

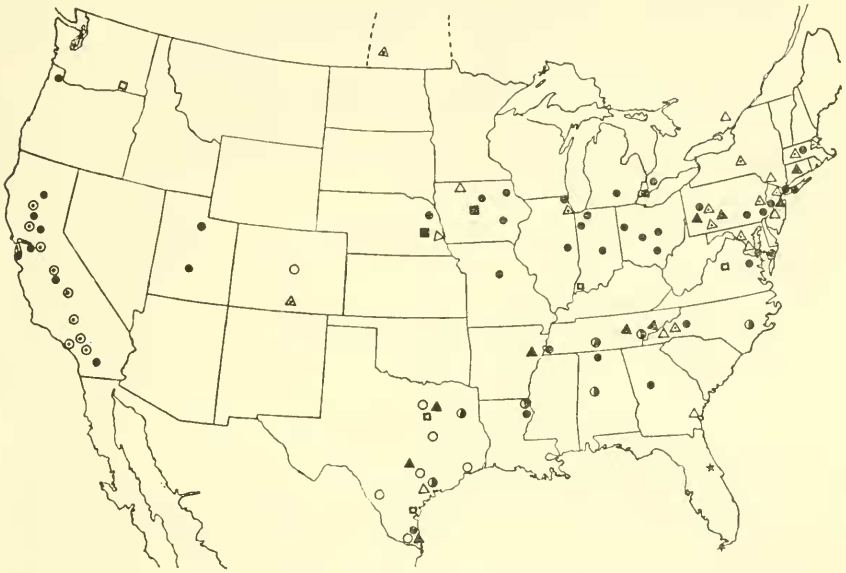
DESCRIPTION: Body oblong ovate, rather stout (fig. 1). Rostrum fairly stout, moderately to strongly curved (figs. 1, 3). Prothorax moderately to strongly rounded on sides, narrowed and sometimes constricted toward apex; disk punctate and/or sculptured. Elytra rather convex dorsally, slightly wider behind middle than at base (fig. 1); scales unevenly distributed in bands, fasciae, or patches in all but *S. halophilus* Blatchley and *S. vestitus* LeConte. Median lobe of male genitalia either heavily or lightly sclerotized dorsally (figs. 54–61).

DISCUSSION: General statements are difficult concerning the resemblances or the differences between this group of species and the other groups of species in the subgenus *Smicronyx*. The characters used in the key to species groups will serve to distinguish the species of this group from those of the other groups on the basis of external characteristics. In some cases the male genitalia may be helpful. The median lobe of the male genitalia is known to be heavily sclerotized dorsally only in some species of the *S. sculpticollis* group and in *S. spretus* Dietz. However, the genitalia apparently offer nothing else which would aid in recognizing this group of species.

Although the species in this group do not resemble each other as closely as the species of some other groups do (i.e., the *S. cinereus* group), they resemble each other more closely in general body shape and proportions, rostral shape, and shape of the male genitalia than they resemble the species of other groups. None of them appears to be

distinctive enough to justify placing them in "groups" by themselves, and therefore they are treated here as a single group.

Map 2 gives the distribution of this group.



MAP 2.—Distribution of the specimens examined of the *sculpticollis* group of *Smicronyx*. ▲, *S. apionides*; ▣, *S. perfidus*; ○, *S. atratus*; ●, *S. sculpticollis*; △, *S. congestus*; ⊙, *S. seriatus*; ★, *S. halophilus*; △, *S. tychoides*; □, *S. interruptus*; ◑, *S. vestitus*.

Key to Species of the *Smicronyx sculpticollis* Group

1. Body surface, including legs, entirely black; all scales white 2
   Body surface never entirely black, some part or parts reddish or brownish; scales never entirely white 3
2. Elytra covered with scattered patches of broad scales; surface of prothorax appearing strongly pebbled . . . . . **S. apionides** Casey (p. 230)
   Elytra thinly covered with linear scales except for a few broad scales at bases of third intervals; surface of prothorax rough but not pebbled. **S. seriatus** LeConte (p. 228)
3. Femora always reddish, their bases dark; scales of elytra (of all species but *S. vestitus* LeConte) in bands, patches, or vittae 4
   Femora always some shade of brown, never reddish; elytral scales unicolorous and evenly distributed 6
4. Surface of prothorax and elytra entirely black or piceous 5
   Elytra and/or prothorax reddish brown or reddish 7
5. White elytral scales arranged in broken bands; surface of prothorax smooth between punctures . . . . . **S. atratus** Dietz (p. 224)
   White elytral scales arranged in wavy bands; surface of prothorax raised into low knobs between punctures . . . . **S. interruptus** Blatchley (p. 225)

586455—62——3

6. Disk of prothorax covered with rounded punctures; scales grayish white and closely spaced . . . . . **S. halophilus** Blatchley (p. 235)
   Disk of prothorax covered with confluent punctures, which form numerous oblique concentric channels; scales widely spaced.
   S. perfidus Dietz (p. 233)
7. Head, prothorax, and elytra entirely reddish brown; prothoracic punctures nearly round . . . . . **S. congestus** Casey (p. 226)
   Head and prothorax always black, elytra partly reddish, prothoracic punctures not round 8
8. Scales of elytra closely and evenly spaced; punctures of prothorax confluent, interspaces forming concentric rugae which run anterolaterally from the midline . . . . . **S. vestitus** LeConte (p. 232)
   Scales of elytra condensed into irregular transverse bands or the different colors in such bands . . . . . 9 [3]
9. Elytra reddish except for a black sutural line; punctures of prothorax deep, surface of prothorax having a roughly sculptured appearance; rostrum not swollen at base . . . . . **S. sculpticollis** Casey (p. 220)
   Elytra black, except for reddish vittae on the fourth to sixth intervals (absent in some specimens); surface of prothorax not appearing roughly sculptured; rostrum swollen at base . . . **S. tychoides** LeConte (p. 218)

Smicronyx tychoides LeConte

FIGURES 53, 106

Smicronyx tychoides LeConte, Proc. Amer. Philos. Soc., vol. 15, pp. 171–172, 1876. Lectotype, here designated: Male, "Western States," MCZ 1905 (J. L. LeConte collection).

DESCRIPTION: Rostra of both sexes black, stout, moderately curved, rather thick and swollen at base; sparsely punctate and thinly covered with small scales behind antennal insertions; finely punctate and shining before antennal insertions in female. Head black, finely alutaceous, very finely and sparsely squamose in front. Antennal scape and funicle piceous, club ferruginous. Prothorax black, strongly rounded at sides, fairly convex dorsally, disk evenly covered with shallow, crescent-shaped punctures; scales very sparse, elongate, light yellowish brown; prosternum moderately emarginate and concave.

Elytra black, usually (but not always) having a reddish vitta on fourth to sixth intervals; scales ovate, pale yellowish to white, condensed into short vittae at base of third intervals and on humeri as well as in narrow irregular transverse bands. Underside of thorax and abdomen thinly covered with small ovate white scales. Femora moderately clavate, black at their bases, otherwise ferruginous; thinly covered with scales similar to those of femora. Tarsi rufopiceous, first three segments short and broad; claws small, almost parallel. Stem of spiculum ventrale of female genitalia only slightly expanded at its anterior end (fig. 106).

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[3] *Smicronyx fiducialis* Casey will key to couplet 9, but has not been included in this key because the abraded condition of the only known specimen leaves the nature of its color pattern somewhat uncertain.

Measurements: The following measurements were taken from 2 females from St. Simons Island, Ga. (CAS), 1 male and 1 female from Lake Okoboji, Iowa (USNM), 1 female from Great Falls, Md. (USNM), 1 male from Camden Co., N.J. (CAS), 1 male from New Lots, Long Island, N.Y. (AMNH), 2 females from Ramapo Mountains, N.Y. (CAS), 1 male and 2 females from Valley of the Black Mountains, N.C. (AMNH). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 30	2. 20–2. 40	2. 30	2. 10–2. 40
Elytra length	1. 43	1. 40–1. 50	1. 47	1. 40–1. 55
Elytra width at base	0. 90	0. 83–0. 96	0. 95	0. 86–1. 03
Prothorax length	0. 59		0. 65	0. 56–0. 69
Prothorax width	0. 68	0. 66–0. 69	0. 72	0. 69–0. 76
Rostrum length	0. 83	0. 79–0. 86	0. 88	0. 83–0. 92
Rostrum length before antennal insertion	0. 28	0. 26–0. 30	0. 35	0. 33–0. 40
Funicular segment 2 length	0. 068		0. 060	0. 051–0. 068
Funicular segment 3 length	0. 051		0. 043	0. 034–0. 051

Biology: Pierce (1907) reported *S. tychoides* breeding in *Cuscuta arvensis* Beyr. (now a synonym of *C. pentagona* Engelm.) and parasitized by *Bracon Smicronygis* Ashmead (mss. name) near Washington, D.C., on July 24. Pierce also stated that *S. tychoides* had been reared from *Cuscuta* stem galls on August 1 at Victoria, Texas, by A. C. Morgan and C. R. Jones. The larvae entered the ground before pupating.

Hamilton (1886) reported collecting *S. tychoides* from *Ambrosia integrifolia* (a form of *A. trifida* Linnaeus according to Fernald, 1950) in August. The locality of these observations was not given, but Hamilton lived in Allegheny, Pennsylvania, and may have made the observations in that area. The specimens were identified by Dr. Horn, and, judging from Hamilton's description of them, they probably were *S. tychoides*.

The host-plant records which follow were taken from the material examined: "Ex galls on *Cuscuta gronovii*," New Lots, Long Island, N.Y., Aug. 10 (AMNH); "Reared from gall on dodder," Dow's Swamp, Ottawa, Ontario, Aug. 7 (CNC).

Discussion: The only other species with which *S. tychoides* could easily be confused (and is confused in collections) is *S. sculpticollis* Casey, which it resembles in respect to general body shape and proportions, body color, and elytral scale pattern. As stated in the key on page 217, the two species may be distinguished by the deeply sculptured prothorax and rufous elytra of *S. sculpticollis* as opposed to the shallowly punctured prothorax and narrow red elytral vittae of *S.*

tychoides. In addition, the rostrum is gibbous at the base in *S. tychoides*, but not so in *S. sculpticollis*.

DISTRIBUTION: Records taken from the material examined indicate that *S. tychoides* occurs on the Atlantic Coastal Plain, on the Gulf coastal plain, in the Appalachian highlands, and in the Iowa-Nebraska portion of the central lowlands. The specimens examined are as follows:

GEORGIA: GLYNN CO.: St. Simons Island, July 19 (CAS).
IOWA: DICKINSON CO.: Lake Okoboji, July 1 (USNM).
MARYLAND: MONTGOMERY CO.: Great Falls, July 2 (USNM).
NEBRASKA: SAUNDERS CO.: Cedar Bluffs (USNM).
NEW JERSEY: CAMDEN CO.: Dec. (CAS).
NEW YORK: KINGS CO.: New Lots, July 10 (AMNH). ROCKLAND CO.: Ramapo Mountains (AMNH, CAS).
NORTH CAROLINA: BUNCOMBE CO.: Valley of Black Mountains, June 20–23 (AMNH).
ONTARIO: CARLETON CO.: Dow's Swamp, Ottawa, Aug. 7 (CNC).
TEXAS: CAMERON CO.: Brownsville, June 26 (USNM). VICTORIA CO.: Victoria, Aug. 22 (USNM).
Total specimens examined: 18.

Smicronyx sculpticollis Casey

FIGURES 1–3, 31, 54, 105

Smicronyx sculpticollis Casey, Ann. New York Acad. Sci., vol. 6, p. 403, 1892. Lectotype, here designated: Male, "Va," USNM 36711 (T. L. Casey collection).

Smicronyx sagittatus Casey, Ann. New York Acad. Sci., vol. 6, p. 402, 1892. New synonymy. Type: Male, Rhode Island, USNM 36710 (T. L. Casey collection).

Smicronyx gibbirostris Casey, Ann. New York Acad. Sci., vol. 6, p. 407, 1892. New synonymy. Type: Male, Milford, Delaware, USNM 36712 (T. L. Casey collection).

DESCRIPTION: Rostra of both sexes piceous, moderately curved, sparsely punctate, interspaces finely alutaceous; sparsely squamose, except before antennal insertions in female. Head black to piceous, not squamose. Antennae rufopiceous to ferruginous throughout. Prothorax black, strongly rounded at sides, strongly narrowed and slightly constricted behind apex; closely and deeply punctured, giving surface a roughly sculptured appearance; disk thinly covered with linear, yellowish brown scales, oriented toward midline; prosternum deeply emarginate, moderately concave.

Elytra ferruginous, except for a dark line down the median suture; scales elongate elliptical, yellow to yellowish white, condensed at bases of third intervals and in several irregular, indefinite transverse bands. Underside of thorax and abdomen thinly covered with small, elliptical white to yellow scales. Legs entirely ferruginous, except for black bases of femora. Femora moderately clavate, covered with elongate

light brownish yellow scales. Tibiae covered with scales similar to those of femora. Tarsal segments all rather short and broad; claws small, almost parallel, connate for about half their length. Median lobe of male genitalia wider at base than at apex; internal sac distinctly spiculate and having a pair of dark, rounded sclerites attached to distal portion (fig. 54).

Measurements: The following measurements were taken from 3 males and 2 females from Jeannette, Pa. (CM), 4 females from Easton, Pa. (CAS), 2 females from Phillipsburg, N.J. (CAS), 2 males from Illinois Beach State Park, Ill. (CNHM), 3 males and 1 female from Brownsville, Tex. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 09	1. 80–2. 40	2. 24	1. 80–2. 40
Elytra length	1. 44	1. 15–1. 65	1. 50	1. 10–1. 65
Elytra width at base	0. 91	0. 76–1. 03	0. 95	0. 73–1. 00
Prothorax length	0. 57	0. 49–0. 66	0. 58	0. 49–0. 63
Prothorax width	0. 65	0. 56–0. 73	0. 66	0. 59–0. 73
Rostrum length	0. 86	0. 73–1. 00	0. 91	0. 73–1. 00
Rostrum length before antennal insertion	0. 26	0. 20–0. 33	0. 34	0. 30–0. 36
Funicular segment 2 length	0. 066	0. 051–0. 068	0. 066	0. 051–0. 068
Funicular segment 3 length	0. 049	0. 034–0. 051	0. 049	0. 034–0. 051

Biology: Weiss and West (1922) published an account of their observations on the biology of *S. sculpticollis* in New Jersey. Numerous galls were noted on *Cuscuta cephalanthi* Engelman at Monmouth Junction, New Jersey, during the "first part of August." The galls were subglobular (sometimes distorted or irregular), single-chambered enlargements of flower-cluster peduncles, 4–6 mm. in diameter, and mostly yellow or orange (a few greenish) in color. Most of the galls contained weevil larvae, pupae and adults during early August. The adults were identified as *Smicronyx sculpticollis* Casey by C. W. Leng. During the last part of August the galls contained many adults, which were beginning to emerge through circular holes in the galls. By mid-September, most of the adults had left the galls. Detailed descriptions of the larva and pupa were given and are quoted below:

Larva: Length about 2.5 mm. form subcylindrical, slightly curved, tapering slightly at both ends; sparsely hairy, hairs short; color light yellow, head light brown. Head small, subcircular, slightly depressed; collum absent; epicranial halves separated dorsally by a very faint median suture; front triangular; gula indistinct, membranous; ventral mouth parts fleshy; clypeus and labrum distinct, former transverse; antennae minute almost obsolete; ocelli absent. Mandibles of biting type, broad across base, bifid at tips with a comparatively minute tooth below the two terminal ones. Maxilla fused with labium to near apex; lacinia simple, fringed with chitinous hairs on inner surface; galea absent; maxillary palpi two-jointed, labium fleshy with mentum and submentum fused, indistinct;

labial palpi one-jointed. True legs absent indicated by ambulatory tubercles. Thoracic and abdominal segments each with three dorsal plicae. Cerci absent. Anal segment wart-like.

Pupa: Length about 2.25 mm. Light yellow, oval. Head and beak bearing several minute hairs. Prothorax dorsally bears a row of about twelve distantly placed chitinous hairs on anterior, lateral and part of posterior lateral edge; metathorax with a similar pair arising from mid-dorsal portion; each abdominal segment with a transverse row of distantly placed chitinous hairs; abdomen terminated by a pair of outwardly directed chitinous spines. All hairs arising from tuberculate bases.

The host-plant records which follow were taken from the material examined:

In stems of *Solidago* at points of attachment of *Cuscuta* (adults reared) Chelsea, S.I., N.Y., Sept. 8, Spec. Surv. 20184 (USNM); ex stem *Aster* sp., on which *Cuscuta* was growing (species reared) Berwyn, Md., Sept. 29, W. H. Anderson Colr. (USNM); ex stem of composite on which *Cuscuta* was growing (reared) Berwyn, Md., Nov. 8, W. H. Anderson Colr. (USNM). (The three preceding records are *not* included in table 1 on page 193.)

Lar. in seed capsules of *Cuscuta arvensis*. Lar. into soil Sept. Ad. em. X, 1–8, '45, Beltsville, Md. (USNM); on *Cuscuta*, Snow Hill, Md., Aug. 3 (USNM); in *Cuscuta arvensis* seed, Metuchen, N.J., Oct. 12 (USNM); on dodder, Spalding, Ga., Oct. 20 (USNM); bred from *Cuscuta arvensis* Springville, Utah, Sept. 7 (USNM) (the correct name for *Cuscuta arvensis* Beyr. is *C. pentagona* Engelm.); cotton, July 23 (USNM); On *Ambrosia artemisiifolia* Lexington, N.C., July 12 (B. D. Valentine).

DISCUSSION: This species bears some resemblance to *S. tychoides* LeConte in general body form and proportions, color, and elytral scale pattern, but the two species may be distinguished by the differences indicated by the key on p. 217, and in the discussion of *S. tychoides* on page 219.

Although the western (California and Utah) and eastern populations of *S. sculpticollis* are apparently widely separated geographically, the writer can find no morphological indication that all the populations do not belong to the same species.

After comparing the types of *Smicronyx sculpticollis* Casey, *S. gibbirostris* Casey, and *S. sagittatus* Casey, the writer has concluded that all three specimens may be representatives of the same species. The type of *sagittatus* has an impunctate median line on the prothorax as mentioned by Casey (1892), but otherwise the specimen is very similar to the type of *S. sculpticollis*. In the type specimen of *S. gibbirostris*, the rostrum is slightly gibbous at the base, and the elytra are slightly shorter than in the average *S. sculpticollis*, but it is difficult to be certain that these qualities are not the results of individual variation.

DISTRIBUTION: Records taken from the material examined indicate that *S. sculpticollis* is widely distributed on the Atlantic coastal plain, the Gulf coastal plain, the Appalachian highlands, and the central lowlands. This species has also been recorded from valley and

coastal regions of the Pacific mountain system in California and Oregon, and from the Great Basin region in Utah. The specimens examined are as follows:

ALABAMA: LIMESTONE CO.: Greenbrier, July 19 (Howden). CALIFORNIA: BUTTE CO.: Chico, Nov. 8 (USNM). CONTRA COSTA CO.: Vine Hill, Oct., Nov. 25 (CAS). FRESNO CO.: Fresno, June 5 (USNM). INYO CO.: Bishop, June 11 (CAS). SACRAMENTO CO.: Clarksburg, July 23 (USNM); Sacramento, April 22 (CNHM). SAN DIEGO CO.: Poway (CAS). SAN MATEO CO.: No data (CNHM). YOLO CO.: Woodland, May 13 (USNM).

DISTRICT OF COLUMBIA: June 18 (USNM).

GEORGIA: SPALDING CO.: Oct. 20 (USNM).

ILLINOIS: CHAMPAIGN CO.: Homer, March 30 (USNM). LAKE CO.: Illinois Beach State Park, June 21 (CNHM).

INDIANA: LAKE CO.: East Chicago, Aug. 23 (CNHM). LA PORTE CO.: LaPorte (CM). MARION CO.: July 14 (CU).

IOWA: CLAYTON CO.: Guttenberg, Sept. (CAS). JOHNSON CO.: Iowa City (CM), June 12 (USNM). STORY CO.: Ames, June (USNM).

LOUISIANA: MADISON PARISH: Tallulah, July 23 (USNM).

MARYLAND: MONTGOMERY CO.: Plummer's Island, May 30 (CAS). PRINCE GEORGES CO.: Beltsville Oct. 1–8 (USNM). WORCESTER CO.: Snow Hill, Aug. 16 (USNM).

MASSACHUSETTS: WORCESTER CO.: Northboro, Aug. 20 (CAS).

MICHIGAN: EATON CO.: Grand Ledge, Jan. 1 (USNM).

MISSOURI: BOONE CO.: Columbia ? (USNM).

NEBRASKA: CUMING CO.: Westpoint, June (USNM). "Nebr." (USNM).

NEW JERSEY: CAMDEN CO.: Camden, Jan. 19 (USNM). MERCER CO.: Trenton (USNM). WARREN CO.: June 24 (CAS).

NEW YORK: KINGS CO.: New Lots, July 10 (AMNH); Brooklyn (CNHM). OSWEGO CO.: Oswego, July 24 (CU). QUEENS CO.: Rosedale, L.I. May 4, (USNM); RICHMOND CO.: Chelsea, Sept. 8 (USNM).

NORTH CAROLINA: BUNCOMBE CO.: Valley of the Black Mountains, Aug. 5 (AMNH).

OHIO: AUGLAISE CO.: July 3 (ELS). FRANKLIN CO.: Westerville, June 19 and 30, July 1 (ELS). HOCKING CO.: July 8 (ELS). LICKING CO.: June 19 and 27 (ELS).

ONTARIO: ESSEX CO.: Leamington, June 2 and 5, July 3; Pelee Island, June 27 and July 1; Point Pelee, June 8, July 4 (CNC). KENT CO.: Tillbury, Oct. (CNC).

OREGON: COLUMBIA CO.: Scappoose, July 16 (USNM).

PENNSYLVANIA: ALLEGHENY CO.: No data (CM); Pittsburgh, July 19 (CM). DAUPHIN CO.: July 1 (CAS). NORTHAMPTON CO.: Easton, June 7 and 17, July 16 and 31 (CAS). WESTMORELAND CO.: Jeannette, June 1, 21, 26, July 18 and 19 (CM).

TENNESSEE: ROANE CO.: July 16 (USNM). SHELBY CO.: Memphis, March (CAS).

TEXAS: CAMERON CO.: Brownsville, March 19, June, July (USNM). "Tex." (AMNH).

UTAH: SEVIER CO.: Richfield, July 15 (USNM). UTAH CO.: Springville, Sept. 7 (USNM).

VIRGINIA: No data (AMNH, USNM).

Total specimens examined: 129.

Smicronyx atratus Dietz

FIGURES 55, 107

Smicronyx atratus Dietz, Trans. American Ent. Soc., vol. 21, pp. 153–154, 1894. Lectotype, here designated: Male, "Tex.," Academy of Natural Sciences, Philadelphia 2918 (Horn collection).

DESCRIPTION: Rostra of both sexes black, stout, strongly curved; roughly punctate, slightly gibbous, sparsely scaly behind antennal insertions; rugose punctate before antennal insertions; only slightly longer and more tapered before antennal insertions in female than in male. Head black, finely alutaceous, sparsely squamose in front. Antennae black to piceous, scales yellowish white. Prothorax black, strongly rounded at sides, strongly narrowed and constricted just behind apex, quite convex dorsally; the disk covered with rounded punctures, interspaces finely alutaceous; scales either medium yellowish brown or white, white scales condensed into three short vittae near base; prosternum moderately emarginate, short before coxae.

Elytra piceous, the intervals covered with ovate brown and white scales, the white condensed into short vittae at base of third interval and on the humeri as well as into broken bands on rest of elytra. Underside of the thorax and abdomen thinly covered with broadly ovate yellowish brown scales. Femora moderately clavate, rufopiceous, covered with ovate brownish yellow scales. Tibiae rufopiceous, covered with rows of small, elliptical yellowish scales. Tarsi black, covered with light brownish yellow scales, first three segments short and broad. Stem of spiculum ventrale of female genitalia distinctly expanded at anterior end.

MEASUREMENTS: The following measurements were taken from 2 males and 1 female from Brownsville, Tex. (USNM), 1 male and 7 females from Sedalia, Colo. (USNM), 1 male from Anahuac, Tex. (USNM), and 1 male from Sabinal, Tex. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 48	2. 10–2. 70	2. 79	2. 60–2. 90
Elytra length	1. 74	1. 40–1. 90	2. 00	1. 80–2. 10
Elytra width at base	0. 92	0. 73–1. 03	1. 12	1. 00–1. 15
Prothorax length	0. 60	0. 49–0. 63	0. 68	0. 66–0. 73
Prothorax width	0. 74	0. 59–0. 79	0. 83	0. 76–0. 86
Rostrum length	0. 89	0. 73–1. 03	1. 04	0. 92–1. 06
Rostrum length before antennal insertion	0. 32	0. 26–0. 36	0. 41	0. 33–0. 46
Funicular segment 2 length	0. 064	0. 051–0. 068	0. 068	
Funicular segment 3 length	0. 048	0. 034–0. 051	0. 051	

Discussion: *S. atratus* resembles *S. sculpticollis* Casey, *S. tychoides* LeConte, and *S. congestus* Casey in having rather convex elytra, on which the scales are condensed into transverse bands, and in having a strongly rounded prothorax. However, in *S. atratus* the scales of the elytra are mostly white and the punctures of the prothorax are almost round, neither of which is true of the three other species mentioned.

Biology: Two host-plant records, which follow, were taken from the material examined. "*Cuscuta* stem" Dallas, Tex., June 29 (USNM); "*Cuscuta* stem" Sabinal, Tex., June 2 (USNM).

Distribution: Present records indicate that the range of this species extends from the Gulf coastal plain in Texas to the southern Rocky Mountain region. The specimens examined are as follows:

Colorado: Douglas Co.: Sedalia, Sept. 4 (USNM).

Texas: Bexar Co.: San Antonio, June 22 (USNM). Cameron Co.: Brownsville, June 5 (USNM). Chambers Co.: Anahuac, Oct. (USNM). Dallas Co.: Dallas, June 29 (USNM). Limestone Co.: Mexia, June 12 (USNM). Uvalde Co.: Sabinal, June 2 (USNM).

Total specimens examined: 26.

Smicronyx interruptus Blatchley

Figure 56

Smicronyx interruptus Blatchley, *in* Blatchley and Leng, Rhynchophora or weevils of North Eastern America, pp. 220–221, 1916. Lectotype, here designated: Male, Posey Co., Indiana, April 19, 1904, collected by W. S. Blatchley, Purdue University (in W. S. Blatchley collection).

Description: Rostra of both sexes black, stout, thick, and slightly gibbous at base, punctate, thinly squamose, and slightly rugose behind antennal insertions; finely punctate before antennal insertions; shining and slightly tapered before antennal insertions in female. Head black, finely alutaceous, sparsely squamose in front. Antennae black to piceous. Prothorax black, moderately rounded at sides, strongly narrowed and slightly constricted near apex; surface raised into numerous low granules, giving it a knobby appearance; thinly covered with broadly ovate scales, which range from medium brown to light yellowish white; prosternum moderately emarginate and concave.

Elytra black, intervals covered with a mixture of brown and yellowish white elongate-ovate scales, white scales loosely arranged in narrow, irregular transverse bands. Underside of thorax and abdomen covered with small, broadly ovate yellowish white scales. Femora moderately clavate, ferruginous, black near their bases; covered with elliptic-ovate light yellowish brown scales. Tibiae ferruginous, covered with elongate scales similar in color to those of femora. Tarsi black, covered with grayish white scales; first three segments rather short and broad, fourth segment not greatly exceeding the third; claws subparallel, connate for approximately half their length.

MEASUREMENTS: The following measurements were taken from 2 males and 2 females from Dallas, Tex. (USNM), 1 male and 1 female from "Va." (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 40	2. 30–2. 50	2. 43	2. 20–2. 60
Elytra length	1. 73	1. 65–1. 80	1. 70	1. 60–1. 90
Elytra width at base	1. 01	1. 00–1. 03	1. 07	1. 00–1. 15
Prothorax length	0. 60	0. 59–0. 63	0. 60	0. 56–0. 66
Prothorax width	0. 68	0. 66–0. 69	0. 72	0. 63–0. 79
Rostrum length	0. 82	0. 79–0. 86	0. 81	0. 73–0. 89
Rostrum length before antennal insertion	0. 26		0. 27	0. 23–0. 33
Funicular segment, 2 length	0. 056	0. 051–0. 068	0. 051	
Funicular segment, 3 length	0. 045	0. 034–0. 051	0. 039	0. 034–0. 051

BIOLOGY: The host-plant records which follow were taken from the material examined: "Bred *Cuscuta* gall" Dallas, Tex., May 15 (USNM); "on *Vachellia farnesiana*" Point Lavaca, Tex., July (USNM); "in dodder galls" Gardena, Walla Walla Co., Washington, Sept. 1 (USNM).

DISCUSSION: This species is one of the few species, in the *S. sculpticollis* group of species, in which the elytral scales are evenly distributed. However, the general body shape and proportions, sculptured prothorax, and moderately curved, ecarinate rostrum of *S. interruptus* are all characteristic of the *S. sculpticollis* group of species.

DISTRIBUTION: This species has been recorded from localities in the Great Plains, the Gulf coastal plain, and the central lowlands region. Considering the other records, it seems probable that the "Va." specimens were taken on either the Atlantic coastal plain or the Piedmont Plateau. Several specimens were recently collected at a single locality on the Columbia Plateau in Washington. The specimens examined are as follows:

TEXAS: CALHOUN CO.: Point Lavaca, July 27 (USNM). DALLAS CO.: Dallas, May 15 (USNM). VIRGINIA: "Va.," Aug. 21 (USNM).
WASHINGTON: WALLA WALLA CO.: Gardena, Sept. 1 (USNM).
Total specimens examined: 16.

Smicronyx congestus Casey

FIGURES 57, 109

Smicronyx congestus Casey, Ann. New York Acad. Sci., vol. 6, pp. 401–402, 1892. Lectotype, here designated: Female, District of Columbia, USNM 36709 (T. L. Casey collection).

DESCRIPTION: Body reddish brown, except underside of thorax and abdomen, which are piceous. Rostra of both sexes reddish brown, moderately curved, subcarinate dorsally and laterally; more tapered and smoother before antennal insertions in female. Head finely

alutaceous and very sparsely squamose in front. Antennae reddish brown throughout. Prothorax strongly rounded at sides, strongly narrowed and constricted toward apex; evenly and rather thinly covered with light brownish yellow scales and a few broader scales, which are condensed into three short vittae near base.

Elytral intervals covered with ovate, subtruncate brownish yellow scales, which are condensed in several wavy transverse bands, in patches on humeri, and at base of third intervals. Underside of the thorax and abdomen thinly covered with yellowish linear scales, except side pieces of the mesothorax and metathorax, which are closely covered with broader scales. Femora moderately clavate, piceous at base, the rest ferruginous, thinly covered with linear, yellowish scales. Tarsi ferruginous, third segment distinctly broader than first two; fourth segment not greatly exceeding third; claws small, nearly parallel, connate for nearly half their length. Median lobe of male genitalia broader at the base than at apex, fairly heavily sclerotized dorsally; internal sac covered with short, broad, and rather blunt spines; spiculum gastrale curved and expanded at anterior end (fig. 57). Stem of spiculum ventrale of female genitalia slightly expanded at anterior end (fig. 109).

Measurements: The following measurements were taken from 7 males and 9 females from Ithaca, N.Y. (DMA), 1 male and 1 female from Marblehead, Mass. (CU), 1 male from Glen View, Ill. (CNHM), and 1 male from Glen Echo, Md. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 48	2. 20–2. 65	2. 49	2. 15–2. 60
Elytra length	1. 71	1. 55–1. 90	1. 72	1. 50–1. 90
Elytra width at base	1. 03	0. 96–1. 09	1. 02	0. 83–1. 09
Prothorax length	0. 67	0. 56–0. 73	0. 66	0. 59–0. 73
Prothorax width	0. 79	0. 69–0. 83	0. 78	0. 66–0. 83
Rostrum length	1. 02	0. 96–1. 12	1. 10	0. 96–1. 15
Rostrum length before antennal insertion	0. 35	0. 30–0. 40	0. 47	0. 43–0. 49
Funicular segment 2 length	0. 069	0. 068–0. 085	0. 069	0. 051–0. 085
Funicular segment 3 length	0. 058	0. 051–0. 068	0. 059	0. 051–0. 068

Biology: This species was observed on *Cuscuta gronovii* Willd. near Ithaca, N.Y., from July 23 to Aug. 20, 1957. Numerous pairs were observed in copulation, and several females were seen chewing into the capsules of the *Cuscuta*, presumably in preparation for oviposition. Unfortunately, no larvae were obtained from the capsules, although several dozen capsules were dissected in late August of that year. No galls were observed on the stems of the *Cuscuta*. A single host record was taken from the material examined: "Dodder," Northboro, Mass., Aug. 28 (CAS).

DISCUSSION: On the basis of the general body shape, transverse bands of scales on the elytra, and shape of the male genitalia, *S. congestus* bears the closest resemblance to *S. sculpticollis*, *S. tychoides*, and *S. atratus*, but may be distinguished from any of those species by its reddish brown body color or by careful comparison of the genitalia.

DISTRIBUTION: Most of the records from the material examined indicate that this species may be found on the Atlantic coastal plain, in the Appalachian highlands, and in the central lowlands region. A single record (La Veta, Colo., Casey collection) from the southern Rocky Mountains section exists, but the significance of that record seems uncertain at this time. The specimens examined are as follows:

ILLINOIS: COOK CO.: July 19 (CNHM).

MANITOBA: Treesbank, July 1 (CNC).

MARYLAND: MONTGOMERY CO.: Glen Echo, July 9 (USNM).

MASSACHUSETTS: ESSEX CO.: Marblehead, Aug. (CU); WORCESTER CO.: Northboro, Aug. 28 (CAS).

NEW JERSEY: ESSEX CO.: Newark, June 10 (CAS).

NEW YORK: TOMPKINS CO.: Ithaca (Six Mile Creek), July 23, Aug. 1, Aug. 11, Aug. 20 (DMA).

NORTH CAROLINA: BUNCOMBE CO.: Valley of the Black Mountains, Aug. 6 (AMNH).

PENNSYLVANIA: ALLEGHENY CO.: Pittsburgh, June 20, July 10 (CM); NORTHAMPTON CO.: Wind Gap, June 25 (CAS); "Penn" (CAS); WESTMORELAND CO.: Jeannette, June 27, July 20 (CM).

Total specimens examined: 58.

Smicronyx seriatus LeConte

FIGURE 58

Smicronyx seriatus LeConte, *in* LeConte and Horn, Proc. Amer. Philos. Soc., vol. 15, p. 172, 1876. Lectotype, here designated: Female, Mariposa, California, collected by A. Thevenet, MCZ 1904 (J. L. LeConte collection).

Smicronyx elsegundinis Pierce, Bull. Southern California Acad. Sci., vol. 38, p. 52, 1939. New synonymy. Holotype: Female, El Segundo, California, June 15, 1938, W. D. Pierce, C. Pierce, and D. Pool, Los Angeles County Museum.

DESCRIPTION: Body and legs entirely black, all scales white. Rostra of both sexes strongly curved; shallowly punctate, alutaceous, and distinctly striate above antennal insertions; smoother and more tapered before antennal insertions in female than in male. Head black, finely alutaceous, sparsely squamose in front. Antennae black throughout. Prothorax broadly rounded at sides, slightly narrowed toward apex; disk deeply but not closely punctured, interspaces finely punctulate; scales sparse, linear; prosternum moderately emarginate and concave.

Elytral intervals slightly wrinkled transversely and very sparsely covered with linear scales, except for very short vittae of broader

scales at the bases of the third intervals. Underside of the thorax and abdomen sparsely covered with linear scales. Side pieces of thorax covered with broad, rounded scales. Femora only slightly clavate, thinly covered with linear scales. Tibiae thinly covered with scales similar to those of femora. Tarsi thinly covered with slender scales, the third segment much broader than the first two; fourth segment extending well beyond the third; claws small, subparallel, connate for approximately half their length. Median lobe of male genitalia lightly sclerotized along middorsum, sides subparallel, internal sac armed with broad, but sharp, spines and heavily sclerotized near bases of orificial plates; spiculum gastrale curved, but not hooked at its anterior end (fig. 58).

Measurements: The following measurements were taken from 6 males and 8 females from Woodland, Calif. (USNM), and 2 males from Bass Lake, Madera Co., Calif. (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 81	1. 60–2. 00	1. 80	1. 70–2. 10
Elytra length	1. 18	1. 10–1. 30	1. 20	1. 10–1. 30
Elytra width at base	0. 70	0. 56–0. 76	0. 71	0. 66–0. 76
Prothorax length	0. 44	0. 40–0. 46	0. 44	0. 40–0. 49
Prothorax width	0. 50	0. 43–0. 56	0. 50	0. 46–0. 56
Rostrum length	0. 65	0. 56–0. 69	0. 68	0. 66–0. 76
Rostrum length before antennal insertion	0. 25	0. 23–0. 30	0. 28	0. 26–0. 33
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 034		0. 034	

Biology: A single host plant record was taken from the material examined, "Ex Dodder," Bass Lake, Calif., July 7 (CAS). Pierce (1939) reported taking this species (under the name *Smicronyx elsegundinis* Pierce) on *Cuscuta californica* at El Segundo, California, on June 15 and June 29.

Discussion: *S. seriatus* strongly resembles *S. apionides* Casey in regard to body and scale color, general body shape and genitalia, but *S. apionides* has scattered patches of broad white scales on the elytra and a subcylindrical, deeply sculptured prothorax, neither of which is true of *S. seriatus*. In addition, the median lobe of the male genitalia is lightly sclerotized along the midline of the dorsum in *S. seriatus*, but not in *S. apionides*.

A comparison of several paratypes (which were also topotypes) of *S. elsegundinis* Pierce with the lectotype of *S. seriatus* showed them to be in such close agreement with the latter that the species described by Pierce as *S. elsegundinis* is considered by the writer to be conspecific with *S. seriatus* LeConte.

Distribution: Present records indicate that *S. seriatus* may be found in the Sacramento and San Joaquin Valley regions of California. The following specimens were examined:

California: contra costa co.: July (CAS). fresno co.: Fresno, April 19 (USNM). inyo co.: Bishop, June 11 (CAS). kern co.: Tehachapi (USNM). los angeles co.: Pasadena, April 6, May 28 (CAS). madera co.: Bass Lake, July 7–9 (CAS). sacramento co.: Davis, May 13 (USNM). san bernardino co.: Colton (USNM). yolo co.: Woodland, May 13 (USNM). "S. Calif.," (CM).

Total specimens examined: 96.

Smicronyx apionides Casey

Figures 59, 108

Smicronyx apionides Casey, Ann. New York Acad. Sci., vol. 6, p. 405, 1892. Lectotype, here designated: Male, Asheville, North Carolina, USNM 36713 (T. L. Casey collection).

Description: Rostra of both sexes black, fairly stout, strongly curved, fairly smooth, finely punctate at sides; surface not shining; longer and less strongly tapered in female; remotely squamose (scales narrow) behind antennal insertions. Head black, finely alutaceous, without a frontal patch of scales. Antennae black to piceous, club rather elongate ovate. Prothorax black, very broadly rounded at the sides, only slightly narrowed at apex; punctures deep, closely spaced; interspaces interrupted and raised, giving surface a strongly pebbled appearance; prosternum shallowly concave, antecoxal ridges rather poorly defined; scales very sparse, mostly narrow and pointed but a few ovate; all scales silvery white and easily abraded.

Elytra black, each interval bearing a row of narrow silvery white scales and a few silvery white ovate scales condensed into scattered patches; base of third interval having two condensed rows of broad scales for a short distance. Scales of the venter sparsely distributed, except on prosternum and metepisternum on which they are broader and closely spaced. Femora stout, black, moderately clavate, scales elongate, silvery white and sparsely distributed. Tibiae black, bearing a few widely spaced rows of linear whitish scales. Tarsi piceous, third segment distinctly broader than second, the fourth segment extending only slightly past end of third; claws small, connate for approximately half their length, almost parallel. Internal sac of male genitalia covered with rather broad spines; spiculum gastrale curved, but not hooked at the anterior end (fig. 59).

Measurements: The following measurements were taken from 1 male and 4 females from Pittsburgh, Pa. (CM), 1 male from Rosslyn, Va. (USNM), 1 male from Orange, Conn. (USNM), 1 female from

Gatlinburg, Tenn. (CU), 1 male from Texas (USNM), and 1 female from Brownsville, Tex. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 70	1. 60–1. 90	1. 90	1. 70–2. 10
Elytra length	1. 25	1. 20–1. 40	1. 39	1. 20–1. 50
Elytra width at base	0. 68	0. 63–0. 76	0. 73	0. 66–0. 76
Prothorax length	0. 41	0. 40–0. 43	0. 45	0. 43–0. 49
Prothorax width	0. 49	0. 46–0. 53	0. 51	0. 46–0. 56
Rostrum length	0. 65	0. 60–0. 73	0. 71	0. 66–0. 79
Rostrum length before antennal insertion	0. 23	0. 20–0. 26	0. 32	0. 26–0. 36
Funicular segment 2 length	0. 042	0. 034–0. 051	0. 040	0. 034–0. 051
Funicular segment 3 length	0. 038	0. 034–0. 051	0. 039	0. 034–0. 051

Biology: The only information on the biology of this species consists of the following host-plant records taken from the material examined: "On *Cuscuta* sp.," Berwyn, Md., July 20 (USNM); "on blue weed and dodder," El Paso, Tex., July 8 (DMA).

Discussion: This species, with its small size, black color, white scales, and "pebbled" prothorax is not easily confused with any other species in the *S. sculpticollis* group, except *S. seriatus* LeConte. The differences between *S. apionides* and *S. seriatus* LeConte are given in the discussion of *S. seriatus*.

Distribution: Present records indicate that the range of *S. apionides* includes the Atlantic and Gulf coastal plains and the southern and middle Appalachian highlands; a single record (El Paso) indicates the presence of this species in the basin and range portion of Texas. The following specimens were examined:

Arkansas: cross co.: Oct. 2 (USNM).

Connecticut: new haven co.: Orange, May 21 (USNM).

District of Columbia: No data (USNM); "Woodridge," June 3 (USNM).

Florida: No data (USNM).

Maryland: prince georges co.: Berwyn, July 20 (USNM).

New Jersey: middlesex co.: South Amboy (USNM).

Pennsylvania: allegheny co.: Pittsburgh, May 22, 31, July 1, 7 (CM). westmoreland co.: Jeannette, May 30 (CM).

Tennessee: anderson co.: Oak Ridge, AEC Area, May 4 (Howden). sevier co.: Gatlinburg, July 2, 5 (USNM); Great Smoky Mountains National Park, Aug. 6 (Howden).

Texas: bexar co.: San Antonio, June 22. cameron co.: Brownsville, June (USNM). dallas co.: Dallas, Aug. 28 (USNM). No data (USNM).

Virginia: arlington co.: Rosslyn, July 9 (USNM). augusta co.: Near Elliot, June 20 (USNM).

Total specimens examined: 24.

Smicronyx vestitus LeConte

FIGURE 60

Smicronyx vestitus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 172, 1876. Type: Male, Kansas, MCZ 1909 (J. L. LeConte collection).

DESCRIPTION: Rostra of both sexes black to piceous, fairly stout, moderately curved; feebly striate dorsolaterally, sparsely squamose behind antennal insertions; slightly more tapered and smooth before antennal insertions in female than in male. Head black, finely alutaceous, bearing a small patch of light brown scales on front. Antennal scape rufous, the rest piceous. Prothorax black, strongly rounded on sides, strongly narrowed and slightly constricted toward apex; punctures of disk confluent, intervals forming wavy rugae which run anterolaterally from midline; closely covered with ovate and elongate scales, which are a dirty yellowish brown color; prosternum moderately emarginate and concave.

Elytra rufous, except for a dark sutural line, which broadens near the base; closely covered with broad, subquadrate scales of same color as scales of prothorax. Underside of thorax and abdomen closely covered with small, broadly ovate scales similar to those of the dorsum in color except for a slight iridescence. Femora moderately clavate, black at their bases, but otherwise rufous; covered with elongate yellowish scales. Tibiae rufopiceous, covered with linear yellowish white scales. Tarsi rufopiceous, third segment distinctly broader than first two, tarsal claws small, subparallel, connate approximately half their length. Median lobe of male genitalia distinctly widened toward apex; internal sac covered with small, blunt spines; spiculum gastrale distinctly hooked at its anterior end (fig. 60).

MEASUREMENTS: The following measurements were taken from 1 male and 1 female from Tallulah, La. (USNM), 2 males and 2 females from Tuscaloosa, Ala. (B. D. Valentine collection), 1 male and 1 female from Lawrence Co., Tenn. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 45	2. 40–2. 50	2. 42	2. 20–2. 60
Elytra length	1. 70	1. 60–1. 80	1. 67	1. 50–1. 80
Elytra width at base	1. 07	1. 06–1. 09	1. 03	0. 96–1. 09
Prothorax length	0. 63	0. 59–0. 66	0. 60	0. 59–0. 66
Prothorax width	0. 71	0. 69–0. 73	0. 66	0. 63–0. 73
Rostrum length	0. 90	0. 89–0. 92	0. 88	0. 86–0. 92
Rostrum length before antennal insertion.	0. 24	0. 23–0. 26	0. 31	0. 30–0. 33
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 042	0. 034–0. 051	0. 034	

Biology: The host-plant records which follow were taken from the material examined: "Bred *Vachellia farinosa*," Victoria, Tex., March 17 (USNM); "on cotton," Lawrence Co., Tenn., June 25 (USNM); "cotton," Tallulah, La., July 23, (USNM).

Discussion: After examining the material determined by W. G. Dietz in the Dietz collection at the Museum of Comparative Zoology (Cambridge, Mass.), the writer has concluded that Dietz (1894) applied the name *S. vestitus* to the same species he described as *S. commixtus* in 1894, and not to the species described as *S. vestitus* by J. L. LeConte in 1876. Blatchley and Leng (1916) evidently applied the name *S. vestitus* to the correct species, because they stated that they had examined the type specimen, and their description of the type has proved to be quite accurate.

Distribution: Records from the material examined indicate that *S. vestitus* may be found in both the eastern and western portions of the Gulf Coastal Plain, in the central lowlands region, and in the southern Appalachian highlands. The following specimens were examined:

Alabama: tuscaloosa co.: Tuscaloosa, May 23 and 24, June 18, July 7 (B. D. Valentine).

Arkansas: washington co.: June 4 (ELS).

Louisiana: madison parish: July 23 (USNM).

Tennessee: knox co.: Knoxville, May 17, 18, 22, 29, June 21, Aug. (Howden). lawrence co.: June 25 (USNM).

Texas: smith co.: Tyler, July 7 (Howden). victoria co.: Victoria, March 17 (USNM).

Total specimens examined: 32.

Smicronyx perfidus Dietz

Smicronyx perfidus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 161-162, 1894. Lectotype, here designated: Female, Iowa, CM (Ulke collection).

Description: Rostra of both sexes reddish brown, fairly stout, slightly curved and slightly tapering from base to apex; coarsely punctate and squamose laterally behind antennal insertions, more finely punctate before antennal insertions; middorsum smooth, impunctate from near base to apex. Second funicular segment of antenna slightly longer than third segment; antennal club rufous, elongate ovate. Head dark reddish brown, finely alutaceous, front sparsely squamose. Prothorax dark reddish brown, regularly rounded on sides, narrowed toward apex; punctures of disk elongate and confluent, interspaces raised to form wavy, anterolaterally oriented rugae; smooth median line distinct but abbreviated at both ends. Prothoracic scales oriented toward median line, sparser and narrower on disk than at sides. Prosternum moderately emarginate and shallowly concave; antecoxal ridges not very distinct.

Elytra dark brown, moderately convex dorsally; humeri prominent, declivities distinct; slightly wider behind the middle than at base, scales ovate, brownish and gray, the gray scales arranged in rather indefinite transverse bands. Scutellum small, shining. Venter of thorax and abdomen covered with grayish white scales similar to gray scales of elytra in shape and size. Femora clavate, sparsely covered with linear scales. Tibiae not greatly expanded toward apex, sparsely covered with rows of linear grayish scales. Tarsal segment 3 much broader than first two and deeply bilobed; segment 4 of moderate length; claws slightly divergent, connate for slightly less than half their length.

MEASUREMENTS: The following measurements were taken from the type specimen (a female) and a male from Cedar Bluffs, Nebr. (USNM). All measurements are in millimeters:

	Male	*Female*
Body length	3. 10	3. 40
Elytra length	2. 20	2. 40
Elytra width at base	1. 30	1. 40
Prothorax length	0. 80	0. 90
Prothorax width	0. 90	1. 00
Rostrum length	1. 30	1. 40
Rostrum length before antennal insertion	0. 55	0. 60
Funicular segment 2 length	0. 085	0. 102
Funicular segment 3 length	0. 068	0. 068

BIOLOGY: At present, no information is available on the biology of this species.

DISCUSSION: Although *S. perfidus* resembles most of the rest of the species of the *S. sculpticollis* group in respect to general body shape, body proportions, and elytral scale pattern, it does not resemble any of those species closely enough to be easily confused with them. The confluent punctures on the prothorax form a pattern of channels similar to that on the prothorax of *S. vestitus* LeConte, but the elytra are reddish and their scale pattern plain in *S. vestitus* as opposed to the dark brown elytra and banded scale pattern of *S. perfidus*.

DISTRIBUTION: The only known specimens of *S. perfidus* have been collected in the Iowa-Nebraska portion of the central lowlands.

NEBRASKA: SAUNDERS CO.: Cedar Bluffs (USNM).

Smicronyx fiducialis Casey

Smicronyx fiducialis Casey, Ann. New York Acad. Sci., vol. 6, pp. 399–400, 1892. Type: Male, Iowa, USNM 36708 (T. L. Casey collection).

DESCRIPTION: Rostrum black, moderately stout, moderately curved, subcarinate laterally and medially both before and behind

the antennal insertions; punctation finer before than behind antennal insertions. Head black, very finely alutaceous. Antennae black, second segment of funicle subequal to third segment. Prothorax black, broadly rounded at the sides; narrowed, but only slightly constricted at anterior end; scales of disk light brown, either ovate or elongate and curled, oriented from the sides toward a few anteriorly oriented median rows of scales; a short basal vitta of white scales on each side; punctures of the disk shallow, nearly round, closely arranged in curved, anterolateral rows.

Elytra reddish brown, darkest toward the median area of the basal half; scales (other than the single rows of recumbent setiform scales) oblong ovate, light yellowish brown with a scattering of white, arranged in poorly defined, wavy, transverse fasciae. Underside of thorax and abdomen black, covered with broadly ovate yellowish white scales. Femora dark reddish brown, covered with elongate, grayish white scales. Tibiae same color as femora, thinly covered with rows of very narrow whitish scales. Tarsi very dark reddish brown; claws connate for nearly half their length, nearly parallel.

Measurements (taken from the type specimen): Body length 2.60 mm., length of elytra 1.75 mm., width of elytra 1.05 mm., length of prothorax 0.80 mm., width of prothorax 0.80 mm., length of rostrum 0.85 mm., length of rostrum before antennal insertions 0.25 mm.

Discussion: Although the type (and only known) specimen of *S. fiducialis* is somewhat abraded, it does not appear to be conspecific (on the basis of external structure) with any other species covered by this study, and is therefore being treated as a valid species here.

Smicronyx halophilus Blatchley

Figures 61, 110

Smicronyx halophilus Blatchley, Journ. New York Ent. Soc., vol. 28, p. 165, 1920. Lectotype, here designated: Male, Key West, Florida, March 3, 1919, collected by W. S. Blatchley, Purdue University (W. S. Blatchley collection).

Description: Rostra of both sexes moderately curved, medium to very dark reddish brown; rugulose-punctate and squamose behind antennal insertions; finely punctate and glabrous before the antennal insertions in female, coarsely punctate in male. Head reddish brown to black, closely squamose above the base of the rostrum. Antennae black to rufopiceous, scales grayish white. Prothorax piceous to reddish brown, moderately rounded on the sides; moderately narrowed and constricted toward apex; disk evenly covered with large subangular punctures, closely covered with broadly ovate, dirty grayish white scales; prosternum deeply emarginate, short before coxae and slightly concave.

Elytra piceous to reddish brown, the intervals covered with scales similar to those on prothorax. Underside of thorax and abdomen black, covered with broadly ovate white scales. Femora moderately clavate, deep reddish brown, covered with light grayish white elongate-ovate scales. Tibiae reddish brown, the scales elongate. Tarsi piceous, fourth segment projecting only slightly beyond the third; tarsal claws small, subparallel, connate for approximately half their length. Median lobe of male genitalia slightly wider at base than at apex, not lightly sclerotized dorsally, internal sac covered with fine spines; spiculum gastrale slightly hooked at the anterior end (fig. 61).

MEASUREMENTS: The following measurements were taken from 3 males and 5 females from Key West, Fla. (CM, CAS, CNHM, ELS), 1 male from Big Pine Key, Fla. (USNM), 1 male from Saddlebunch Keys, Fla. (ELS), and 1 female from Crescent City, Fla. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 38	2. 30–2. 50	2. 35	2. 20–2. 60
Elytra length	1. 72	1. 70–1. 90	1. 68	1. 60–1. 90
Elytra width at base	0. 91	0. 83–1. 00	0. 88	0. 79–0. 96
Prothorax length	0. 55	0. 53–0. 56	0. 59	0. 56–0. 63
Prothorax width	0. 66	0. 63–0. 69	0. 66	0. 59–0. 69
Rostrum length	0. 83	0. 79–0. 86	0. 85	0. 79–0. 96
Rostrum length before antennal insertion	0. 32	0. 30–0. 33	0. 40	0. 36–0. 46
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 044	0. 034–0. 051	0. 045	0. 034–0. 051

BIOLOGY: Two host-plant records, which follow, were taken from the material examined: "On *Flaveria linearis*," Key West, Fla., Dec. 29 (ELS); "on *Flaveria linearis*," Saddlebunch Keys, Fla., Dec. 29 (ELS).

DISCUSSION: *S. halophilus* differs from the majority of the species of the *S. sculpticollis* group in not having a coarsely punctate or sculptured prothorax, and not having a banded or fasciate pattern of scales on the elytra. However the genitalia of both sexes resemble those of the species of that group much more than they resemble those of any other species group. Therefore, *S. halophilus* is presently placed in the *S. sculpticollis* species group rather than being allowed to stand alone n a rather indistinct "group" of its own.

DISTRIBUTION: *S. halophilus* has been recorded only from the Florida peninsula and the Florida keys.

SMICRONYX INSTABILIS GROUP

DESCRIPTION: Body oblong ovate, moderately stout (fig. 13). Rostrum stout, moderately curved (figs. 14–15), usually faintly striate. Prothorax broadly rounded on the sides, narrowed and sometimes slightly constricted toward the apex; disk evenly, but not closely, punctate, closely punctulate between punctures (fig. 13). Elytra broadest at base, declivities usually distinct; scales evenly covering surface, their colors forming patterns in some species. Median lobe of male genitalia lightly sclerotized at middorsum; a pair of sclerites present on internal sac; internal sac usually not exceeding median lobe in length (figs. 62–66).

DISCUSSION: The species of this group resemble the species of the *S. cinereus* group in general body form and proportions. However, their prothoraxes are not as deeply punctate and shining as in the species of the latter group, and there are no pairs of sclerites on the internal sacs of the male genitalia of the species of the *S. cinereus* group, as there are in the species of the *S. instabilis* group.

Map 3 gives the distribution of this group.

MAP 3.—Distribution of the specimens examined of the *instabilis* group (except *S. rhodopus* Dietz) of *Smicronyx*. ○, *S. defricans*; ▲, *S. posticus*; ●, *instabilis*; △, *S. pusillus*; ⊕, *S. languidulus*; ★, *S. silaceus*.

Key to the Species of the *Smicronyx instabilis* Group

1. A single patch of white scales present on each side of the median suture near the middle of the elytral disk and joined by a line of white scales which runs toward the humerus; scales of elytra otherwise yellowish brown. **S. instabilis** Casey (p. 241)

   Elytra without patches or oblique lines of white scales 2
2. A smooth median line distinguishable on prothorax or punctures of prothoracic disk very small, sparse, difficult to distinguish among the dense punctulation of the surface 3

   No smooth median line distinguishable on prothorax, punctures of disk distinct, though not deep. 5
3. All scales of elytra white, rostra of both sexes nearly straight. **S. rhodopus** Dietz (p. 247)

   All or part of scales of elytra yellow, rostrum moderately curved in both sexes 4
4. Scales of prothorax and elytra uniformly yellow; spaces between punctures of prothorax punctulate, but not rugose . . **S. languidulus** Dietz (p. 246)

   Scales of prothorax and elytra a mixture of white and brownish yellow; prothoracic interspaces shining, raised to form low, concentric rugae. **S. posticus** Dietz (p. 240)
5. Scales of prothorax and elytra evenly gray or yellowish gray. **S. pusillus** Dietz (p. 244)

   Scales of prothorax and elytra yellow, brown, or white 6
6. Scales of elytra very closely spaced, pale yellowish brown mottled with medium to dark yellowish brown; tarsi distinctly reddish. **S. silaceus** Casey (p. 243)

   Scales of elytra rather openly spaced, yellowish brown with small scattered patches of white; tarsi nearly black . . . . . **S. defricans** Casey (p. 238)

Smicronyx defricans Casey

Figures 62, 111

Smicronyx defricans Casey, Ann. New York Acad. Sci., vol. 6, p. 406, 1892. Lectotype, here designated: Male, Monterey, California, USNM 36716 (T. L. Casey collection).

Smicronyx nubilus Dietz, Trans. American Ent. Soc., vol. 21, pp. 149–150, 1894. New synonymy. Type: Female, California, MCZ 1922 (Dietz collection).

Smicronyx celaenus Pierce, Bull. Southern California Acad. Sci., vol. 38, pp. 50–52, 1939. New synonymy. Holotype: Female, El Segundo, California, May 18, 1938, W. D. Pierce, C. Pierce, and D. Pool.

Description: Rostra of both sexes stout, piceous, moderately curved, substriate from base to apex; surface finely alutaceous, sparsely squamose toward the base. Head black, finely squamose in front. Antennae piceous throughout. Prothorax piceous, broadly rounded at sides, moderately narrowed and feebly constricted near apex; disk sparsely punctate, interspaces densely punctulate; scales of disk sparse, elongate and brownish yellow or elliptical and whitish.

Elytra black; scales elliptical, except for a single row of setalike scales on each interval, either yellowish brown or white in color;

white scales grouped in scattered patches, giving the elytra a mottled appearance. Femora rufopiceous, moderately clavate, covered with elongate-elliptic white scales. Tibiae stout, piceous, covered with elongate yellowish white scales. Tarsi rufopiceous; third segment distinctly broader than first two; fourth segment extending moderately beyond third; claws almost parallel, connate for approximately half their length. Median lobe of male genitalia gradually broadened toward apex; internal sac armed with heavy spines near median orifice, covered with fine spines near the apical end (fig. 62). Stem of spiculum ventrale of female genitalia unexpanded at the anterior end (fig. 111).

Measurements: The following measurements were taken from 6 males and 1 female from Los Angeles Co., Calif., and 1 female from Alameda Co., Calif. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 80	1. 60–1. 90	1. 80	1. 70–1. 90
Elytra length	1. 20	1. 00–1. 30	1. 25	1. 20–1. 30
Elytra width at base	0. 71	0. 66–0. 76	0. 69	0. 63–0. 73
Prothorax length	0. 46	0. 43–0. 49	0. 44	0. 43–0. 46
Prothorax width	0. 53	0. 49–0. 56	0. 52	0. 49–0. 56
Rostrum length	0. 62	0. 43–0. 69	0. 74	0. 66–0. 83
Rostrum length before antennal insertion	0. 17	0. 13–0. 20	0. 28	0. 23–0. 33
Funicular segment 2 length	0. 037	0. 034–0. 051	0. 042	0. 034–0. 051
Funicular segment 3 length	0. 037	0. 034–0. 051	0. 034	

Biology: Pierce (1939) reported collecting this species (under the name *Smicronyx celaenus* Pierce) May 18, June 13, and June 28 on *Cuscuta californica*, and rearing some specimens from the capsules of that plant on July 18.

Discussion: After examining the lectotype of *Smicronyx defricans* Casey and the type specimen of *S. nubilus* Dietz, the writer has concluded that both specimens are representatives of the same species on the basis of their morphological similarity. The name *Smicronyx nubilus* Dietz has therefore been placed in synonymy with the name *Smicronyx defricans* Casey.

A comparison of several paratype specimens of *Smicronyx celaenus* Pierce with the lectotype of *S. defricans* Casey did not reveal any differences that would indicate that more than one species was represented in that material. Therefore, *Smicronyx celaenus* Pierce is considered by this writer to be synonymous with *Smicronyx defricans* Casey.

Distribution: *S. defricans* has been recorded only from coastal regions in California. The following specimens were examined:

CALIFORNIA: ALAMEDA CO.: Sept. 25 (CNHM). LOS ANGELES CO.: No data (USNM); El Segundo, June 15 (Los Angeles County Museum); Pasadena, Oct. 10 (CAS).

Total specimens examined: 13.

Smicronyx posticus Dietz

FIGURE 63

Smicronyx posticus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 150, 1894. Type: Female, Maryland, Carnegie Museum (Ulke collection).

DESCRIPTION: Rostrum black, not slender, slightly curved; roughly punctate and scaly behind antennal insertions, remotely punctate before antennal insertions in the male; more remotely punctate, sparsely scaly behind antennal insertions, almost impunctate before antennal insertions in female. Antennae rufopiceous to rufous; club oblong-ovate and glabrous at base. Head finely alutaceous, bearing a few scales on front. Sides of prothorax broadly rounded, narrowed toward apex; strongly and confluently punctate, interspaces forming low concentric rugae; smooth median line present, confined to disk; scales elongate-ovate, mostly light brownish yellow, a few white. Prosternum moderately emarginate, shallowly concave; antecoxal ridges fairly distinct.

Elytra moderately convex; humeri and declivities distinct; intervals flat, closely covered with light brownish yellow scales, among which are a few small patches of white scales; sides subparallel slightly past the middle, then rounded to the apex. Scutellum small, glabrous. Venter of thorax and abdomen sparsely covered with grayish white scales, which are more condensed along edges and sides on thorax. Femora moderately clavate, rufous, sparsely covered with grayish white scales. Tibiae rufous, slightly expanded toward apex, scales as on femora. Third tarsal segment much broader than first two segments; fourth segment rather short, claws quite small, subparallel, connate for approximately half their length.

MEASUREMENTS: The following measurements were taken from 3 males and 2 females from Six Mile Creek, Ithaca, N.Y. (DMA), 2 males and 2 females from Pittsburgh, Pa. (CM), 2 males and 2 females from Jeannette, Pa. (CM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 86	1. 70–2. 20	1. 92	1. 80–2. 10
Elytra length	1. 31	1. 20–1. 45	1. 33	1. 20–1. 45
Elytra width at base	0. 72	0. 69–0. 76	0. 76	0. 69–0. 83
Prothorax length	0. 47	0. 43–0. 53	0. 49	0. 43–0. 56
Prothorax width	0. 56	0. 53–0. 63	0. 59	0. 53–0. 63
Rostrum length	0. 67	0. 59–0. 79	0. 76	0. 73–0. 79
Rostrum length before antennal insertion	0. 20	0. 17–0. 23	0. 32	0. 30–0. 33
Funicular segment 2 length	0. 049	0. 034–0. 051	0. 051	
Funicular segment 3 length	0. 034		0. 034	

Biology: Five specimens of *S. posticus* were found by the writer on *Cuscuta gronovii* Willd. on August 1 at Six Mile Creek, Ithaca, N.Y. No further information is available on the biology of this species.

Discussion: *S. posticus* bears a strong resemblance to *S. defricans* Casey in respect to general body shape and proportions, color, and elytral scale pattern. However, in *S. posticus*, the interspaces of the prothorax are raised into low concentric ridges, the legs are entirely rufous, and the median lobe of the male genitalia has no set of sharp spines on its internal sac near the median orifice, while in *S. defricans* the prothorax has no concentric ridges, the legs are not rufous (femora are piceous), and there is a set of sharp spines on the internal sac near the median orifice of the median lobe (figs. 62–63).

Distribution: Present records indicate that this species may be found on the Atlantic coastal plain and in the Appalachian highlands, from the Chesapeake Bay area northward as far as the Finger Lakes region. The following specimens were examined:

Maryland: st. marys co.: Piney Pt. (USNM).
New York: orange co.: West Point, Sept. 7 (USNM). tompkins co.: Ithaca, Aug. 1 (DMA). westchester co.: New Rochelle, Aug. 25 (USNM).
Pennsylvania: allegheny co.: Pittsburgh, May 27, June 29, July 1, Aug. 15 (CM). northampton co.: June 3 (CAS). westmoreland co.: Jeannette, June 26 and 29, Aug. 7, Sept. 10 (CM).
Total specimens examined: 28.

Smicronyx instabilis Casey

Figures 13–15, 64, 112

Smicronyx instabilis Casey, Ann. New York Acad. Sci., vol. 6, pp. 403–404, 1892.
Type: Female, Suscol Station, Napa Co., California, collected by T. L. Casey, USNM 36715 (T. L. Casey collection).

Description: Rostra of both sexes black, stout, moderately curved, finely punctate and substriate from base to apex; squamose from base to near apex in males, nearly glabrous before antennal insertions in females. Head black, alutaceous, not shining, front covered with a patch of yellowish brown scales. Antennae black to piceous, scales linear and white. Prothorax black, broadly rounded at sides, suddenly narrowed and slightly constricted toward apex; disk evenly covered with shallow, rounded punctures; interspaces finely punctulate; scales both elongate and elliptical, yellowish brown except for a patch of white scales on each side, sparse toward middle of disk.

Elytra black, intervals covered with elliptical scales, yellowish brown except for a patch of white scales on each side of median suture slightly behind the middle, and two thin oblique lines of white scales (indistinct in some specimens) extending from humeri to white patches. Femora moderately clavate, rufopiceous, covered with a mixture of

elongate and elliptical pale brownish scales. Tibiae rufopiceous, covered with linear whitish scales. Tarsi black, covered with silvery white scales; third segment much broader than first two; fourth segment extending well beyond third. Median lobe of male genitalia rather convex dorsally, internal sac covered with small spines (fig. 64). Stem of the spiculum ventrale of female genitalia not expanded at its anterior end (fig. 112).

MEASUREMENTS: The following measurements were taken from 8 males and 5 females from Woodland, Calif. (USNM), 2 males and 1 female from Davis, Calif. (USNM), and 1 female from Sierra Madre, Calif. (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 80	1. 80–2. 20	1. 84	1. 65–2. 10
Elytra length	1. 44	1. 30–1. 50	1. 37	1. 15–1. 50
Elytra width at base	0. 84	0. 73–0. 89	0. 79	0. 73–0. 83
Prothorax length	0. 53	0. 49–0. 59	0. 48	0. 43–0. 56
Prothorax width	0. 62	0. 56–0. 66	0. 57	0. 53–0. 63
Rostrum length	0. 73	0. 66–0. 79	0. 73	0. 63–0. 79
Rostrum length before antennal insertion	0. 22	0. 20–0. 33	0. 31	0. 26–0. 40
Funicular segment 2 length	0. 045	0. 034–0. 051	0. 040	0. 034–0. 051
Funicular segment 3 length	0. 034		0. 034	

BIOLOGY: The biology of this species is unknown except for a few records of plants on which this species has been taken. "*Pyracantha* blossoms," Davis, Calif., May 5 (USNM); "Coll. on *Pinus monophylla*," Argus Mountains, May (USNM); "swept from Alfalf.," Sacramento, Calif., Nov. 21 (USNM).

DISCUSSION: *S. instabilis* may be readily distinguished from the other species in the *S. instabilis* group by the single patch of white scales and oblique line of white scales on each of the elytra. In the case of badly rubbed specimens in which most of the scales are missing, it may be necessary to compare their genitalia with figure 64 (male) or figure 112 (female) in order to identify this species.

DISTRIBUTION: *S. instabilis* has been recorded from the coastal region of California, the California Valley section and (1 record, Bass Lake, Calif.) from the Sierra Nevada section, all in the Pacific mountain system. The following specimens were examined:

CALIFORNIA: CONTRA COSTA CO.: July (CAS). FRESNO CO.: Fresno, May 3 and 18 (USNM). INYO CO.: Argus Mountains, May (USNM). LOS ANGELES CO.: Los Angeles (USNM); Pasadena, March, April, June, Oct. (CAS); Redonodo, March (CAS); Sierra Madre, March, April (CAS). MADERA CO.: Bass Lake, July 8 (CAS). ORANGE CO.: Newport, April 10 (CAS). SACRAMENTO CO.: Sacramento, Nov. 21 (USNM). SAN BERNARDINO CO.: Colton (CAS). SAN DIEGO CO.: Coronado Beach, July 26–27 (CU); Poway (CAS). YOLO CO.: Davis, May 5 and 13; Woodland, May 13 (USNM). Southern Calif. (CM). Lower Calif. (CM).

Total specimens examined: 102.

Smicronyx silaceus Casey

FIGURE 65

Smicronyx silaceus Casey, Ann. New York Acad. Sci., vol. 6, pp. 392, 393, 1892. Lectotype, here designated: Male, Arizona, USNM 36704 (T. L. Casey collection).

DESCRIPTION: Rostra of both sexes moderately curved, black, substriate dorsally, thinly squamose from base to shortly before antennal insertions; finely punctate from base to apex; shining before the antennal insertions. Head black, finely alutaceous, densely squamose above base of rostrum. Antennae piceous throughout. Prothorax black, moderately rounded at sides, moderately narrowed and slightly constricted near apex; disk sparsely but evenly covered with shallow rounded punctures, interspaces densely punctulate; scales pale to medium yellowish brown, or white, elongate or ovate, sparse, mostly elongate on disk except along midline; prosternum moderately emarginate and concave.

Elytra black; intervals closely covered with ovate, subtruncate, white, pale yellow, or medium yellowish brown scales; dark scales arranged in an irregular, blotchy pattern; setiform scales of each interval a medium brown. Femora moderately clavate, rufopiceous, covered with elliptical and elongate white scales. Tibiae piceous, covered with elongate white scales. Tarsi piceous, third segment distinctly broader than first two; fourth segment extending considerably beyond third; claws nearly parallel, connate for approximately half their length. Sides of median lobe of male genitalia nearly parallel; internal sac covered with fine spines (fig. 65).

MEASUREMENTS: The following measurements were taken from 1 male and 4 females from Tucson, Ariz. (USNM), 1 male from Catalina Springs, Ariz. (USNM), 1 male from Mesa, Ariz. (USNM), 2 males and 2 females from El Paso Co., Tex. (USNM), and 1 female from Laredo, Tex. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	1. 52	1. 50–1. 60	1. 65	1. 50–1. 80
Elytra length	0. 95	0. 90–1. 00	1. 10	1. 00–1. 20
Elytra width at base	0. 59	0. 50–0. 66	0. 65	0. 60–0. 73
Prothorax length	0. 42	0. 40–0. 43	0. 45	0. 43–0. 53
Prothorax width	0. 45	0. 43–0. 48	0. 49	0. 46–0. 56
Rostrum length	0. 51	0. 50–0. 56	0. 61	0. 56–0. 66
Rostrum length before antennal insertion	0. 17	0. 16–0. 20	0. 23	0. 20–0. 26
Funicular segment 2 length	0. 034		0. 034	
Funicular segment 3 length	0. 034		0. 034	

BIOLOGY: At present, no information is available on the biology of this species.

DISCUSSION: Dietz (1894) considered *S. silaceus* Casey to be conspecific with *S. imbricatus* Casey, but after comparing the lectotype specimens, and other examples, of the two species, the writer has concluded that they are two very distinct species. In *S. imbricatus*, the sides of the prothorax are nearly parallel, the humeri are very prominent, the elytra are rather elongate, the rostrum of the female is much longer and smoother before the antennal insertions than that of the male, and the scales are either grayish brown or white. None of the last statements could be said to be true of *S. silaceus* (see the description). In addition there is no pair of sclerotized plates attached to the internal sac of the male genitalia in *S. imbricatus*, but there is such a pair of plates on the internal sac in *S. silaceus*.

S. silaceus resembles *S. pusillus* Dietz in respect to size, body shape and proportions, punctation of the prothorax and shape of male genitalia, but when the two species are compared, it can be seen that the sides of the prothorax are more distinctly rounded in *S. silaceus* than in *S. pusillus* and that the scales of the elytra are yellowish brown or white in the former but are distinctly gray in the latter.

DISTRIBUTION: Records taken from the material examined indicate that the range of *S. silaceus* extends from the Gulf coastal plain in Texas across the southern portion of the Great Plains into the Southern Rocky Mountains and into the southern portion of the basin and range province. The following specimens were examined:

ARIZONA: MARICOPA CO.: Mesa, May 13 (USNM). PIMA CO.: Tucson, Apr. 25, 30, May 6 (USNM). PINAL CO.: Oracle, July 4 (USNM). SANTA CRUZ CO.: Nogales, Aug. 18 (USNM); Santa Rita Mountains, May 24 (USNM).

NEW MEXICO: SAN MIGUEL CO.: Las Vegas, Aug. 12 (USNM).

TEXAS: CAMERON CO.: Brownsville (USNM). EL PASO CO.: Aug 22 (USNM). VAL VERDE CO.: Del Rio, 925 ft. (USNM). WEBB CO.: Laredo, May 28 (USNM).

Total specimens examined: 21.

Smicronyx pusillus Dietz

FIGURE 66

Smicronyx pusillus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 141–142, 1894. Lectotype, here designated: Male, San Bernardino, California, Aug. 15, MCZ 1899 (Dietz collection).

DESCRIPTION: Rostra of both sexes black, stout, moderately curved; sparsely punctate, finely punctulate and sparsely squamose behind antennal insertions; distinctly striate dorsally from antennal insertions to near apex in male; not distinctly striate in female. Head black, surface finely punctulate and dull, sparsely squamose in front. Antennae black; scales narrow and white. Prothorax black, broadly rounded at sides, slightly narrowed toward apex; disk sparsely punctate, interspaces dull, densely punctulate; scales pale gray, some elongate,

others elliptical, sparse toward center of disk except along midline; prosternum shallowly emarginate, slightly concave.

Elytra black; intervals thinly covered with pale gray or yellowish gray, elliptical scales. Underside of thorax and abdomen black, thinly covered with a mixture of ovate and narrow pale gray scales. Femora moderately clavate; piceous, covered with narrow, yellowish gray scales. Tibiae stout, piceous; covered with small, elliptical gray scales. Tarsi piceous; third segment distinctly broader than first two; fourth segment extending well beyond third; claws nearly parallel, connate for approximately half their length. Sides of median lobe of male genitalia subparallel; internal sac armed with small spines (fig. 66).

Measurements: The following measurements were taken from the lectotype (a male), 1 male from Pinal Creek, Globe, Ariz. (CU), 1 male from Sacaton, Ariz. (USNM), 3 males and 1 female from Portal, Ariz. (Howden). All measurements are in millimeters:

	Males		*Female*
	Mean	*Extremes*	
Body length	1. 44	1. 35–1. 60	1. 70
Elytra length	0. 96	0. 83–1. 10	1. 09
Elytra width at base	0. 53	0. 49–0. 63	0. 66
Prothorax length	0. 39	0. 36–0. 43	0. 36
Prothorax width	0. 43	0. 40–0. 50	0. 46
Rostrum length	0. 51	0. 46–0. 59	0. 59
Rostrum length before antennal insertion	0. 17	0. 13–0. 20	0. 23
Funicular segment 2 length	0. 034		0. 034
Funicular segment 3 length	0. 034		0. 034

Biology: Two host-plant records are presently available for this species: "Mesquite," Portal, Ariz., June 16 (Howden); "Sweeping clover," Portal, Ariz., June 17, 22 (Howden.)

Discussion: The few specimens of this species which were examined were not difficult to distinguish from the other species of the *S. instabilis* group on the basis of their small size, all gray scales. *S. silaceus* is near *S. pusillus* in size, but differs from the latter in having a combination of yellow, white, and yellowish brown scales which are closely spaced on the elytra and which form a distinct white median vitta on the midline of the prothorax.

Distribution: The few available records indicate that *S. pusillus* may be found in the southern portion of the basin and range province in Arizona and in the southern portion of the Pacific mountain system in California. The following specimens were examined:

Arizona: cochise co.: Portal, June 16, 17, 22 (Howden). gila co.: Pinal Creek, 4,000 ft., at Globe, June 7 (CU). pinal co: Sacaton (USNM).

Total specimens examined: 6.

Smicronyx languidulus Dietz

Smicronyx languidulus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 152, 1894. Lectotype, here designated: Male, Maryland, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes black, moderately curved, punctate and squamose behind antennal insertions; stouter, distinctly substriate and punctate from base to apex in male; smoother, not as distinctly substriate and punctate in female. Head black, finely alutaceous, front sparsely squamose. Prothorax black, broadly rounded at sides, slightly narrowed anteriorly; disk rather finely and remotely punctate, interspaces finely rugulose; impunctate median line present but abbreviated at the ends; prosternum shallowly emarginate, slightly concave, antecoxal ridges barely distinct.

Elytra moderately convex above, humeri distinct, declivities barely distinguishable; intervals thinly covered with ochreous-yellow scales, each interval bearing two rows of ovate scales and one row of linear scales. Scutellum glabrous and shining at center. Femora rufous, moderately clavate, thinly covered with yellowish gray scales. Tibiae rufous, covered with widely separated rows of linear yellowish gray scales. Tarsi rufopiceous; third segment distinctly broader than first two, fourth segment projecting distinctly beyond third; claws connate for approximately half their length.

MEASUREMENTS: The following measurements were taken from the male lectotype from Maryland (Ulke collection, CM), a male from "D.C." (Ulke collection, CM), a male from Wapello, Co., Iowa (USNM), and a female from Priest Bridge, Maryland (USNM). All measurements are in millimeters:

	Males		*Female*
	Mean	*Extremes*	
Body length	1. 60	1. 45–1. 70	1. 50
Elytra length	1. 05	0. 90–1. 15	1. 00
Elytra width at base	0. 64	0. 55–0. 70	0. 60
Prothorax length	0. 45		0. 45
Prothorax width	0. 51	0. 48–0. 55	0. 50
Rostrum length	0. 63	0. 60–0. 65	0. 60
Rostrum length before antennal insertion	0. 20		0. 25
Funicular segment 2 length	0. 042	0. 034–0. 051	0. 034
Funicular segment 3 length	0. 034		0. 034

BIOLOGY: No biological information on this species is presently available, with exception of one specimen having been recorded "on cotton" in June at Concord, North Carolina, by H. F. Howden.

DISCUSSION: The combination of the relatively large, broadly rounded prothorax, and the small, widely spaced elliptical yellow scales of this species make it fairly easy to distinguish from the rest of the species of the *S. instabilis* group.

DISTRIBUTION: *S. languidulus* has been recorded only from a few localities in the District of Columbia and eastern Maryland on the Atlantic coastal plain, on the Piedmont Plateau in North Carolina, and in Ohio and southeastern Iowa in the central lowlands. The following specimens were examined:

DISTRICT OF COLUMBIA: No data (CM).
IOWA: WAPELLO CO.: July 26 (USNM).
MARYLAND: WORCESTER CO.: Priest Bridge, July 4 (USNM).
NORTH CAROLINA: CABARRUS CO.: Concord, June (Howden).
OHIO: HOCKING CO.: Aug. 5 (ELS).
Total specimens examined: 6.

Smicronyx rhodopus Dietz

Smicronyx rhodopus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 140–141, 1894. Type: Male, Texas, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes black, fairly stout, very slightly curved, sparsely punctate and lightly scaly behind antennal insertions; lightly punctate and striolate before antennal insertions in male; minutely punctate but not striolate before antennal insertions in female. Antennae black to piceous throughout; club elongate-ovate, glabrous at base. Head coarsely alutaceous, bearing a few scales on front. Prothorax strongly rounded on sides; narrowed and feebly constricted toward apex. Prothoracic punctures large, shallow, somewhat oval, arranged in curved, anterolateral rows, the interspaces shiny. Prosternum shallowly emarginate, transversely impressed, antecoxal ridges difficult to distinguish.

Elytra piceous, moderately convex dorsally, humeri distinct, declivities indistinct; intervals covered with grayish white oval scales. Scutellum small, shining. Underside of thorax and abdomen piceous, covered with small ovate grayish white scales. Femora rufous, somewhat clavate, thinly squamose. Tibiae rufous, sparsely covered with elongate scales and slightly expanded toward their apices. Tarsal claws parallel, connate for approximately half their length.

MEASUREMENTS: The following measurements were taken from the type specimen (a male) and a female from Columbus, Texas (USNM). All measurements are in millimeters:

	Male	*Female*
Body length	1. 80	1. 80
Elytra length	1. 00	1. 15
Elytra width at base	0. 60	0. 70
Prothorax length	0. 50	0. 50
Prothorax width	0. 50	0. 60
Rostrum length	0. 50	0. 60
Rostrum length before antennal insertion	0. 20	0. 30
Funicular segment 2 length	0. 034	0. 042
Funicular segment 3 length	0. 034	0. 042

BIOLOGY: There is no information available on the biology of this species at present.

DISCUSSION: The two specimens (the type and a female from Columbus, Texas) seen in this study are easily distinguished from the rest of the species in this group, and are therefore considered representatives of a distinct species at this time. The pattern of the prothoracic punctation in *S. rhodopus* is similar to that of *S. posticus* Dietz, but the scales of the prothorax and elytra of the latter species are mostly brown or yellow, rather than white, and the rostra of both sexes are more strongly curved than in *S. rhodopus*. (Numerous smaller differences may be seen upon comparison of specimens of the two species.)

DISTRIBUTION: The only exact locality record (Columbus, Texas) indicates that *S. rhodopus* should be found on the Gulf coastal plain in Texas.

SMICRONYX QUADRIFER GROUP

DESCRIPTION: Body oblong ovate, fairly stout. Rostra of both sexes moderately curved, rather stout. Prothorax moderately to strongly rounded at sides, narrowed and constricted before apex; disk convex, closely and coarsely punctate, setiform scales stout, strongly arched. Elytra at least slightly wider behind middle than at base; declivities distinct; setiform scales stout, usually conspicuous. Median lobe of male genitalia fairly short, not widened at its apex; lightly sclerotized dorsally (figs. 67–69).

DISCUSSION: The species of the *S. quadrifer* group are similar to those of the *S. cinereus* group in regard to general body shape and proportions, stoutness of the rostrum, shape of the genitalia, and prothoracic punctation. However, the rostrum is usually not medially carinate in the *S. quadrifer* group, as it is in the *S. cinereus* group, and the setiform scales of the *S. quadrifer* group are much stouter and more conspicuous than in the *S. cinereus* group

Map 4 gives the distribution of this group.

Key to the Species of the *Smicronyx quadrifer* Group

1. A nearly quadrate patch of dark scales present near middle (and divided by sutural line) of elytra . . . . . **S. quadrifer** Casey (p. 253)
   No central patch of dark scales present on elytra 2
2. Scales of elytra brown except for a conspicuous irregular median patch of white scales near middle of elytra . . **S. albonotatus,** new species (p. 251)
   No median patch of white scales on elytra 3
3. Rostrum gibbous and very coarsely punctate at base; prothorax having all scales white or a complete median vitta of white scales 4
   Rostrum not gibbous, closely but not coarsely punctate at base; white scales of prothorax condensed into patches at sides and forming a short median vitta at base . . . . . **S. lutulentus** Dietz (p. 249)

4. Rostrum very robust, only slightly tapered from base to apex; scales of elytra yellowish white to light yellowish brown; prothorax slightly constricted near apex . . . . . **S. lepidus** Dietz (p. 256)

Rostrum stout at base, but noticeably tapered from base to apex; scales of elytra a mixture of brownish gray, brown, and white; prothorax strongly constricted near apex . . . . . **S. intricatus** Casey (p. 254)

Map 4.—Distribution of the specimens examined of the *quadrifer* group of *Smicronyx*. ○, *S. albonotatus;* △, *S. lepidus;* ▲, *S. intricatus;* ●, *S. lutulentus;* ★, *S. quadrifer.*

Smicronyx lutulentus Dietz

Figures 67, 113

Smicronyx lutulentus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 170, 1894. Lectotype, here designated: Male, "Tex.," MCZ 1920 (Dietz collection).

Description: Rostrum black to piceous; substriate for most of its length in the male, stouter and more strongly curved in male than in female; smoother, less scaly before antennae in female. Antennae piceous to reddish brown. Head black, finely alutaceous, closely squamose (scales light brown) in front. Prothorax closely covered with a mixture of broadly ovate and elongate scales, mostly golden brown, except for very short median and lateral white vittae, which extend a short distance from base. Prosternum slightly concave; antecoxal ridges not very distinct.

Scales of the elytra broad, subtruncate, of same colors as those of prothorax, white scales few and scattered. Scales of venter of thorax and abdomen broadly rounded, grayish white in color. Femora piceous to reddish brown, moderately clavate, covered with ovate and

elongate whitish scales. Tibiae near femora in color, covered with a mixture of ovate-elliptic and narrow scales. Tarsi piceous, fourth segment extending noticeably beyond third segment but not markedly elongate. Claws connate for slightly less than one-half their length, slightly divergent. Median lobe of male genitalia short; subparallel at sides; internal sac covered with small spines, which are more condensed on the dorsum, and form two convergent longitudinal lines; spiculum gastrale rather sinuate, lateral lobe of anterior end rather straight (fig. 67).

MEASUREMENTS: The following measurements were taken from 10 males and 10 females collected at Brownsville, Texas (USNM). All measurements are in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	1. 80	0. 084	1. 68–1. 91	1. 85	0. 148	1. 59–1. 95
Elytra length	1. 24	0. 070	1. 12–1. 32	1. 26	0. 094	1. 06–1. 35
Elytra width at base	0. 75	0. 059	0. 66–0. 80	0. 76	0. 067	0. 66–0. 83
Prothorax length	0. 48	0. 057	0. 43–0. 49	0. 50	0. 044	0. 43–0. 56
Prothorax width	0. 56	0. 022	0. 53–0. 59	0. 59	0. 047	0. 49–0. 63
Rostrum length	0. 69	0. 041	0. 66–0. 79	0. 79	0. 055	0. 69–0. 83
Rostrum length before antennal insertion	0. 21	0. 029	0. 16–0. 26	0. 30	0. 012	0. 23–0. 33
Funicular segment 2 length	0. 038		0. 03–0. 05	0. 048		0. 03–0. 05
Funicular segment 3 length	0. 030			0. 041		0. 03–0. 05

BIOLOGY: The only biological information available on this species consists of the following host-plant records: "Ex pods of *Abutilon*" Brownsville, Tex., March 7 (USNM); "*Parthenium*," March 30, 31, Brownsville, Tex. (USNM); "In copulation on *Parthenium hysterophorus*," Brownsville, Tex., Sept. 16 (USNM); "on *Ambrosia texana*," Brownsville, Tex., June 10 (DMA); "*Monarda*," Brownsville, Tex., March 23 (USNM); "*Monarda citriodora*," Brownsville, Tex., March 24 and 31 (USNM); "cotton," Brownsville, Tex., Apr. 15 (USNM).

DISCUSSION: *S. lutulentus* bears a stronger resemblance to *S. albonotatus* new species than to any other species in the *S. quadrifer* group. A discussion of the qualitative and the quantitative differences between the two species is given on p. 252.

DISTRIBUTION: Present records indicate that *S. lutulentus* may be found on the Gulf coastal plain in Texas and in the southern portion of the Great Plains in Texas. The following specimens were examined:

TEXAS: BEXAR CO.: San Antonio, April 22, May 10 (USNM). CAMERON CO.: Brownsville (Esperenza Ranch) (USNM); Brownsville (Los Borregos), May 22 and 24, June 6 (USNM); Brownsville, March 7–31, April 15, 21, 28, 30, May 2, June 7, 9, 16, Sept. 16 (USNM); San Benito, March 20 (USNM). UVALDE CO.:

Uvalde 930 ft. (USNM). VICTORIA CO.: Victoria, Jan. 18, March 30, April 16 (USNM).

Total specimens examined: 68.

***Smicronyx albonotatus*, new species**

FIGURES 68, 114

DESCRIPTION: Rostra of both sexes piceous, covered with light brown scales from base to near apex; stouter and slightly more curved in male than in female. Head black to piceous; front closely covered with light brown scales. Antennae piceous; club reddish brown in some specimens. Prothorax moderately rounded at sides, closely covered by broadly ovate and narrow scales, which are yellowish brown except for a white median vitta which extends from base to near middle of disk, and a similar vitta on each side; prosternum very shallowly concave. Setiform scales as in group description.

Scales of elytra very broadly ovate, subtruncate at their tips, medium brown to yellowish brown except for an irregular median white patch. Scales of ventral side of thorax and abdomen yellowish gray, slightly smaller and more rounded than the scales of the elytra. Femora moderately clavate, dark reddish brown, covered with a mixture of ovate and elongate-ovate pale brownish scales. Tibiae reddish brown, covered with closely spaced rows of elongate white to tan scales. Tarsi piceous; fourth segment extending well beyond third; claws connate for slightly less than half their length and slightly divergent. Median lobe of male genitalia rather broad, subparallel at sides, the internal sac covered with small spines; spiculum gastrale fairly straight; dorsal "wing" at anterior end fairly well developed (fig. 68).

MEASUREMENTS: The following measurements were taken from 9 males and 7 females from San Diego, Texas, plus 1 male from Brownsville, Texas (all USNM collection). All measurements are in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	2. 28	0. 11	2. 15–2. 50	2. 35	0. 10	2. 20–2. 50
Elytra length	1. 60	0. 074	1. 55–1. 70	1. 61	0. 07	1. 55–1. 70
Elytra width at base	1. 02	0. 057	0. 95–1. 10	1. 05	0. 057	1. 00–1. 10
Prothorax length	0. 62	0. 033	0. 60–0. 70	0. 62	0. 02	0. 60–0. 65
Prothorax width	0. 76	0. 033	0. 75–0. 80	0. 79	0. 06	0. 70–0. 80
Rostrum length	0. 84	0. 073	0. 75–1. 00	0. 92	0. 08	0. 85–1. 10
Rostrum length before antennal insertion	0. 25	0. 23	0. 20–0. 30	0. 32	0. 04	0. 30–0. 40
Funicular segment 2 length	0. 052		0. 051–0. 058	0. 051		0. 045–0. 058
Funicular segment 3 length	0. 051			0. 048		0. 038–0. 051

HOLOTYPE: Male, USNM 65406.

TYPE LOCALITY: San Diego, Texas. Type collected May 18 (year unknown) by E. A. Schwarz.

PARATYPES: All from San Diego, Texas (USNM): 1 male and 1 female, May 18 (E.A. Schwarz); 2 females, May 25 (E. A. Schwarz); 1 female, May 18 "Coll. Chittenden"; 2 males and 1 female, May 18 (Hubbard and Schwarz); 1 female, May 19 (Hubbard and Schwarz); 1 female, May 16 (Hubbard and Schwarz).

BIOLOGY: No host-plant data or other biological information on this species is presently available.

DISCUSSION: This species closely resembles *S. lutulentus* Dietz in regard to body shape, prothoracic punctation, shape of scales, and female genitalia. However, the white scales of the elytra are scattered, in the case of *S. lutulentus*, instead of being condensed into a median white patch, and the median lobe of the male genitalia of *S. albonotatus* is broader in proportion to its length and has larger orificial plates than that of *S. lutulentus* (compare figs. 67 and 68). In size, *S. albonotatus* seems consistenly the larger of the two species.

The results of some F comparisons between *S. albonotatus* and *S. lutulentus* Dietz are given below; $n=10$ in male samples, 7 in female samples. A single asterisk indicates an F value significant at the 5 percent level, a double asterisk indicates an F value significant at the 1 percent level:

	F values	
	Males	*Females*
Body length	15. 84**	9. 69**
Elytra length	16. 92**	9. 51**
Elytra width at base	15. 54**	9. 88**
Prothorax length	20. 00**	8. 46*
Prothorax width	17. 90**	7. 39*
Rostrum length	10. 51**	4. 40
Rostrum length before antennal insertion	2. 40	1. 00

DISTRIBUTION: *Smicronyx albonotatus* is presently known only from certain localities on the Gulf coastal plain in southern Texas and basin and range province in Arizona. The following specimens were examined:

ARIZONA: SANTA CRUZ CO.: Santa Rita Mountains, June 11 (USNM).

TEXAS: CAMERON CO.: Brownsville, July (USNM). DUVAL CO.: San Diego, April 29, May 16, 18, 25, June 11 (USNM).

Total specimens examined: 21.

Smicronyx quadrifer Casey

FIGURES 69, 115

Smicronyx quadrifer Casey, Ann. New York Acad. Sci., vol. 6, pp. 388, 389, 1892. Lectotype, here designated: Male, Arizona; USNM 36700 (T.L. Casey collection).

Smicronyx quadrifer var. *texana* Blatchley, Canadian Ent., vol. 48, p. 12, 1916. Type: Male, Brownsville, Texas, May 25, Purdue University (W. S. Blatchley collection.)

DESCRIPTION: Rostra of both sexes stout, black to piceous, rugosely punctate from base to apex; closely squamose from base to near apex in male, to just before the antennal insertions in female. Head black to piceous; surface dull, finely alutaceous; finely and thinly squamose in front. Antennae rufopiceous throughout. Prothorax broadly rounded at the sides, suddenly narrowed and slightly constricted near apex, scales either elongate and setalike or elliptical, yellowish brown or white, the white scales arranged in three short vittae, which extend for a little more than half the distance from base to apex.

Elytra black, intervals covered, in addition to prominent setalike scales, with elliptical scales, of which some are yellowish brown; some, in a subquadrate median patch, nearly black, a few white; white scales condensed to form a white vitta at the base of the third intervals and an abbreviated band at rear edge of the dark patch. Underside of the thorax and abdomen black, covered with broadly ovate white scales. Femora moderately clavate, piceous, covered with elliptical pale yellowish brown to white scales. Tarsi piceous, covered with white scales, third segment only slightly broader than first two; fourth segment moderately exceeding third; claws nearly parallel, connate for approximately half their length. Median lobe of male genitalia slightly constricted behind apex (fig. 69). Stem of spiculum ventrale of female genitalia only slightly expanded at anterior end (fig. 115).

MEASUREMENTS: The following measurements were taken from 3 males and 4 females from San Diego, Tex. (USNM), 1 male from Oracle, Ariz. (USNM), 1 male from the Santa Rita Mountains, Ariz. (USNM), 1 male from Catalina Springs, Ariz. (USNM), 1 female from Hot Springs, Ariz. (USNM), and 1 female from Alice, Tex. (USNM). All measurements are in millimeters:

	Males		Females	
	Mean	Extremes	Mean	Extremes
Body length	2. 31	2. 20–2. 70	2. 63	2. 40–2. 80
Elytra length	1. 58	1. 50–1. 70	1. 70	1. 50–1. 80
Elytra width at base	0. 95	0. 83–1. 06	1. 05	1. 00–1. 13
Prothorax length	0. 60	0. 53–0. 66	0. 68	0. 63–0. 73
Prothorax width	0. 65	0. 56–0. 73	0. 68	0. 63–0. 73
Rostrum length	0. 82	0. 76–1. 00	1. 00	0. 90–1. 10
Rostrum length before antennal insertion	0. 25	0. 20–0. 33	0. 38	0. 33–0. 43
Funicular segment 2 length	0. 065	0. 051–0. 068	0. 062	0. 051–0. 068
Funicular segment 3 length	0. 045	0. 034–0. 051	0. 051	

BIOLOGY: The following host-plant records are available for this species at present: "Dodder," Raleigh, N.C. (ELS); "Bred *Ambrosia* stem," Victoria, Tex., June 3 (USNM); "Mesquite," Wilcox, Ariz., June 22 (Howden); "Acacia," Portal, Ariz., June 16 (Howden).

DISCUSSION: This species may be readily distinguished from the rest of the species in its group by the nearly quadrate patch of dark scales near the middle of its elytra.

The body color of specimens from the easternmost part of the known range of *S. quadrifer* is darker and the dark patch less distinct than in specimens from more western localities, but no other differences between those populations have been observed by the writer.

DISTRIBUTION: Present records indicate that the range of *S. quadrifer* extends along the Gulf and Atlantic coastal plains from southern Texas east to North Carolina, and from southern Texas west into the southern portion of the basin and range province. The following specimens were examined:

ALABAMA: MOBILE CO.: Oak Grove, June 17; Mobile, June 12, June 15 (USNM).

ARIZONA: COCHISE CO.: Huachuca Mountains, (USNM). GRAHAM CO.: Fort Grant, July 19 (USNM). SANTA CRUZ CO.: Nogales, May 28, 29, 31, June 23 (USNM). YAVAPAI CO.: Hot Springs, June 21 (USNM).

LOUISIANA: ST. TAMMANY PARISH: Covington, May 28; Pearl River, June 4 (USNM).

NEW MEXICO: OTERO CO.: White Sands, July 11 (Howden).

TEXAS: CAMERON CO.: Brownsville, May 1 (USNM). DUVAL CO.: San Diego, May 5, May 24 (USNM). EL PASO CO.: El Paso, July 8–9 (USNM). JIM WELLS CO.: Alice (USNM). VICTORIA CO.: Victoria, June 3 (USNM).

Total specimens examined: 37.

Smicronyx intricatus Casey

FIGURES 116, 155

Smicronyx intricatus Casey, Ann. New York Acad. Sci., vol. 6, p. 390, 1892. Lectotype, here designated: Male, El Paso, Texas, collected by G. W. Dunn, USNM 36702 (T. L. Casey collection).

DESCRIPTION: Rostra of both sexes black, moderately curved, stout; roughly punctate, gibbous at base, thinly squamose to near apex in

male, from base to antennal insertions in female. Head black, finely alutaceous, thinly squamose in front. Antennae black; scales narrow and grayish white. Prothorax black, moderately rounded at sides, suddenly narrowed and distinctly constricted near apex; disk evenly covered with rounded punctures; scales either elongate, setalike, and curled or broadly ovate, brownish in color, except a median white vitta and lateral white vittae.

Elytra black to piceous; intervals closely covered with broad, rounded light gray or brownish scales with a mottling of white scales, the heavy setalike scales either medium brown or gray. Underside of the thorax and abdomen black, closely covered with pale brownish gray ovate scales. Femora piceous, moderately clavate, closely covered with a mixture of elongate and ovate brownish gray scales. Tibiae piceous; covered with pale gray elongate scales; slightly expanded at apices. Tarsi black, covered with light gray scales, the third segment only slightly broader than first two, fourth segment exceeding the third by more than the length of the latter; claws connate for slightly less than half their length, slightly divergent. Stem of spiculum ventrale gradually broadened toward anterior end (fig. 116).

Measurements: The following measurements were taken from the lectotype (a female), a female from El Paso, Texas (USNM), two males from Chiricahua National Monument, Arizona (Howden), and a male from Cheyenne, Wyoming (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 86	2. 70–3. 10	2. 92	2. 85–3. 10
Elytra length	1. 94	1. 82–2. 00	1. 82	1. 65–2. 00
Elytra width at base	1. 18	1. 15–1. 25	1. 21	1. 10–1. 32
Prothorax length	0. 77	0. 69–0. 79	0. 82	0. 75–0. 89
Prothorax width	0. 79	0. 73–0. 86	0. 90	0. 80–1. 00
Rostrum length	1. 05	1. 03–1. 06	1. 18	1. 15–1. 32
Rostrum length before antennal insertion	0. 35	0. 33–0. 36	0. 44	0. 35–0. 53
Funicular segment 2 length	0. 062	0. 051–0. 068	0. 085	
Funicular segment 3 length	0. 051		0. 068	

Biology: The biology of this species is entirely unknown at present.

Discussion: *S. intricatus* and *S. lepidus* Dietz resemble each other in having strongly rounded prothoraxes, convex elytra, and strongly punctate rostra, but the pale brownish gray scales and moderately stout rostrum of *S. intricatus* should serve to distinguish it from *S. lepidus*, which has pale yellowish brown scales and an extremely robust rostrum. In addition, the female genitalia of the two species differ in respect to the shape of the spiculum ventrale and the spermatheca (compare figs. 116 and 117).

DISTRIBUTION: The few existing records indicate that *S. intricatus* may be found in the southern Rocky Mountains region, and south of that region in the basin and range portion of Texas. The following specimens were examined:

ARIZONA: COCHISE CO.: Chiricahua National Monument, July 8 (Howden).
TEXAS: EL PASO CO.: El Paso, July 28 (CU).
WYOMING: LARAMIE CO.: Cheyenne, Apr. 20 (USNM).
Total specimens examined: 4.

Smicronyx lepidus Dietz

FIGURE 117

Smicronyx lepidus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 147–148, 1894. Type: Male, Arizona, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes piceous, very robust, moderately curved, roughly punctate and sparsely squamose behind antennal insertions; feebly striate and punctate before antennal insertions in male, not striate in female. Head black, finely rugulose and alutaceous, densely squamose above base of rostrum. Antennal scape and funicle black, club rufopiceous. Prothorax black, strongly rounded at sides, moderately narrowed and slightly constricted toward apex; disk deeply and coarsely punctate; scales broadly ovate, except for large setiform scales, pale yellowish brown, with granular texture; prosternum moderately emarginate, shallowly concave.

Elytra piceous, rather convex, the intervals closely covered with scales similar to those of the thorax. Underside of thorax and abdomen black to piceous, covered with small ovate pale yellowish brown scales. Femora only slightly clavate, rufopiceous to rufous, covered with ovate yellowish white scales. Tibiae stout, piceous: covered with a mixture of yellow and white scales, some elongate, others elliptical. Tarsi black, third segment slightly broader than first two; fourth segment extending only a short distance past third, claws almost parallel, connate for approximately half their length.

MEASUREMENTS: The following measurements were taken from 1 male from Dallas, Tex. (USNM), 1 male from the Jemez Mountains N. Mex. (CAS), and 1 female from Las Vegas, New Mex. (USNM). All measurements are in millimeters.

	Males		*Female*
	Mean	*Extremes*	
Body length	2. 50	2. 40–2. 60	2. 50
Elytra length	1. 77	1. 75–1. 80	1. 80
Elytra width at base	1. 03	1. 00–1. 06	1. 09
Prothorax length	0. 62	0. 59–0. 66	0. 68
Prothorax width	0. 73		0. 76
Rostrum length	0. 90	0. 89–0. 92	1. 00
Rostrum length before antennal insertion	0. 31	0. 30–0. 33	0. 36
Funicular segment 2 length	0. 060	0. 051–0. 068	0. 051
Funicular segment 3 length	0. 051		0. 051

Biology: The only information available on the biology of this species is this host-plant record: "On *Helianthus* sp.," Dallas, Tex., Sept. 22 (USNM).

Discussion: The differences between this species and a similar species, *S. intricatus* Dietz are discussed on p. 255.

Dietz (1894) stated that *S. lepidus* is similar to *S. instabilis* Casey, except for the very robust rostrum of *S. lepidus*. However, it is difficult for the writer to agree with that statement because the prothorax is much more strongly rounded and more closely punctate, the setiform scales much stouter, and the elytra more convex in *S. lepidus* than in *S. instabilis* Casey. The one specimen (a female) from which the genitalia were dissected proved to have greatly reduced hind wings. Whether or not this condition is true of all individuals in the species (rendering them flightless) cannot, of course, be determined without the collection and dissection of many more specimens.

Distribution: The known range of *S. lepidus* (based on only a few records) extends from the central lowlands province in Texas westward to the Colorado Plateau. The following specimens were examined:

New Mexico: sandoval co.: Jemez Mountains, Aug. 9 (CAS). san miguel co.: Las Vegas, Aug. 15 (USNM).

Texas: dallas co.: Dallas, Sept. 22 (USNM).

Total specimens examined: 3.

SMICRONYX PROFUSUS GROUP

Description: Body elongate ovate, rather stout (fig. 20). Rostra of both sexes slightly curved; narrower, smooth and shining before the antennal insertions in the female (fig. 22). Sides of prothorax subparallel behind the point, near the apex, at which prothorax suddenly narrows; disk of prothorax evenly but not closely covered with small rounded punctures (fig. 20). Elytra slightly wider behind middle than at base, declivities distinct (fig. 20). Median lobe of male genitalia rather short, lightly sclerotized dorsally, not widened toward apex as in the *cinereus* group (compare figs. 20, 50).

Discussion: *Smicronyx profusus* Casey strongly resembles the species of the *S. cinereus* group in respect to general body shape and proportions, rostrum of the male (stout and carinate), and genitalia of both sexes. However, the rostrum of the female is never tapered and smooth before the antennal insertions in the species of the *S. cinereus* group (as is true of *S. profusus*); and the punctures of the prothorax are sparser and more rounded in *S. profusus* than in species of the *S. cinereus* group. Because of the differences mentioned, it seems difficult to include *S. profusus* among the species of the *S. cinereus* group and therefore *S. profusus* stands apart from them as a separate "group."

Map 5 gives the distribution of this group.

Map 5.—Distribution of the specimens examined of the *profusus* group of *Smicronyx*. ●, *S. profusus*.

Smicronyx profusus Casey

Figures 20–22, 70, 118

Smicronyx profusus Casey, Ann. New York Acad. Sci., vol. 6, pp. 389, 390, 1892. Lectotype, here designated: Male, Benson, Arizona, collected by G. W. Dunn, USNM 36701 (T. L. Casey collection).

Description: Rostra of both sexes moderately curved, piceous to reddish brown; squamose, laterally carinate nearly to apex in male; smooth and sparsely punctate before antennal insertions, roughly punctate, but not carinate, behind antennal insertions in female. Head black, rugulose punctate, surface dull. Antennae piceous throughout, second funicular segment slightly longer than third segment. Prothorax black, shape and punctures as in group description; scales mostly broadly ovate, a few elongate, brown or white in color, the white scales forming a complete median stripe and two incomplete lateral stripes.

Elytra black to piceous, the intervals covered, in addition to usual row of narrow scales, with broadly ovate scales, which are mostly dark brown, but a scattered few are light brown. Underside of thorax and abdomen closely covered with broadly ovate pale brown scales. Femora stout, moderately clavate, piceous, densely covered with ovate yellowish brown scales and numerous setalike scales. Tibiae piceous; covered with a few elliptical and numerous linear scales, mostly light yellowish brown but sometimes white. Tarsi piceous, covered with small yellowish brown scales; first three segments short and broad, the fourth segment not projecting far beyond the third; claws small, nearly parallel, connate to near their middle. Internal sac of male

genitalia covered with fine spines (fig. 70). Spiculum ventrale of female genitalia distinctly expanded at the anterior end (fig. 118).

MEASUREMENTS: The following measurements were taken from 3 males and 5 females from Tombstone, Arizona (CNHM), 2 males from Benson, Arizona (CAS), and 1 female from "Arizona" (AMNH). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 62	3. 50–3. 80	3. 85	3. 70–4. 00
Elytra length	2. 60	2. 50–2. 70	2. 73	2. 60–2. 90
Elytra width at base	1. 55	1. 53–1. 60	1. 67	1. 63–1. 80
Prothorax length	0. 89	0. 80–0. 93	0. 95	0. 93–1. 00
Prothorax width	1. 09	1. 00–1. 26	1. 10	1. 00–1. 20
Rostrum length	1. 23	1. 16–1. 33	1. 50	1. 43–1. 53
Rostrum length before antennal insertion	0. 48	0. 43–0. 56	0. 77	0. 70–0. 80
Funicular segment 2 length	0. 085	0. 068–0. 102	0. 093	0. 085–0. 102
Funicular segment 3 length	0. 071	0. 068–0. 085	0. 079	0. 068–0. 085

BIOLOGY: The only information available on the biology of this species consists of the following few host-plant records: "On *Gutierrezia*," 2 miles west of Penwell, Texas (USNM); "on *Viguiera stenoloba* foliage," Presidio, Texas, Aug. 17 (USNM); "on foliage of *Condalia lycioides*," near Presidio, Texas, June 4 (USNM).

DISTRIBUTION: Present records indicate that the range of *S. profusus* extends from the southwestern portion of the Great Plains westward across the southern portion of the Rocky Mountain system and southward into the Mexican highlands. The only Mexican record was published by Kissinger (1955), who collected a few specimens of *S. profusus* about 50 miles north of Saltillo, Mexico. The following specimens were examined:

ARIZONA: COCHISE CO.: Benson (CU and CAS); Huachuea Mountains, (USNM); Tombstone, Sept. 14 (CM and CNHM). No data (AMNH).

TEXAS: ECTOR CO.: 2 miles west of Penwell, July 10 (USNM). JEFF DAVIS CO.: Valentine, June 3 (USNM). PRESIDIO CO.: Near Presidio, June 4 (USNM); Presidio, Aug. 17 (USNM).

Total specimens examined: 22.

SMICRONYX SPRETUS GROUP

DESCRIPTION: Body elongate-oval, moderately stout, (fig. 16). Rostrum fairly stout, moderately curved in both sexes (figs. 17, 18); more elongate and smooth before antennal insertions in female. Prothorax moderately rounded on sides, narrowed and slightly constricted toward apex (fig. 16). Elytra widest behind middle, declivities distinct (fig. 16). Median lobe of male genitalia heavily sclerotized dorsally, broader at apex than at base; orificial plates fused dorsally and expanded at that point into a peculiar platelike structure;

a very dark, roughly Y-shaped patch of spines present on internal sac near orificial plates (fig. 71). Stem of spiculum ventrale of female genitalia slightly expanded at anterior end (fig. 119).

Discussion: *S. spretus* bears a strong resemblance to the species of the *S. cinereus* group in respect to size, general body shape and proportions, and prothoracic punctation. However, the male genitalia of *S. spretus* are radically different from the male genitalia of any of the species in the *S. cinereus* group (see figs. 50–52). The peculiar plate-like modification of the orificial plates, mentioned in the description above, does not exist in the *S. cinereus* group, and the median lobe is never heavily sclerotized above (as in *S. spretus*) in that group.

Map 6 gives the distribution of this group.

Smicronyx spretus Dietz

Figures 16–18, 71, 119

Smicronyx spretus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 145, 146, pl. 8, fig. 14, 1894. Lectotype, here designated: Male, "Ariz.," MCZ 1902 (Dietz collection).

Description: Rostrum of both sexes moderately curved, piceous, closely squamose, scales yellowish brown behind antennal insertion; closely punctate and carinate for almost entire length in the male; rugosely and deeply punctate but not carinate before antennal insertions of the female. Head black, finely alutaceous, densely squamose in front. Antennae piceous, scales narrow, yellowish white. Prothorax black, shape as in group description, disk evenly covered with deep rounded punctures, interspaces finely alutaceous; scales both

Map 6.—Distribution of the specimens examined of the *spretus* group of *Smicronyx*. ●, *S. spretus*.

oblong elliptic and linear, dark brown, except for a broad median vitta of white scales and a few scattered white scales; prosternum moderately emarginate and concave.

Elytra black, except for a broad reddish stripe on the fourth to sixth intervals; scales elliptical, medium yellowish brown except for white scales on both humeri and several scattered patches of white scales. Underside of the thorax and abdomen black, covered with ovate white scales. Femora strongly clavate, rufous, covered with elliptical white and light brown scales. Tibiae rufous, covered with elliptical and elongate yellowish white scales. Tarsi rufopiceous, the third segment not much broader than the first two, the fourth segment extending well beyond the third; claws slightly divergent, connate for less than half their length. Male genitalia as in the group description.

Measurements: The following measurements were taken from 6 males and 1 female from Gila Bend, Arizona (CNHM), 2 males and 6 females from Presidio, Texas (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 38	2. 30–2. 60	2. 47	2. 20–2. 70
Elytra length	1. 61	1. 50–1. 70	1. 63	1. 50–1. 70
Elytra width at base	0. 94	0. 69–1. 00	0. 98	0. 86–1. 00
Prothorax length	0. 61	0. 56–0. 66	0. 64	0. 59–0. 66
Prothorax width	0. 64	0. 56–0. 73	0. 68	0. 63–0. 69
Rostrum length	0. 80	0. 76–0. 86	0. 92	0. 89–1. 00
Rostrum length before antennal insertion	0. 22	0. 20–0. 26	0. 35	0. 30–0. 40
Funicular segment 2 length	0. 051		0. 051	
Funicular segment 3 length	0. 034		0. 034	

Biology: The host-plant records which follow were taken from the material examined. "on *Sphaeralcea angustifolia* foliage," Presidio, Tex., April 2 and 4 (USNM); "on *Sphaeralcea* sp. foliage," near Presidio, Tex., April 4 (USNM); "on wild sunflower foliage," near Presidio, Tex., June 8 (USNM); "with sunflowers," Presidio, Tex., May 28 (USNM); "on *Prosopis* sp.," near Presidio, Tex., Apr. 4 (USNM); "collected on cotton," Tucson, Ariz., Aug. 24 (USNM).

Distribution: The records taken from the material examined indicate that the range of *S. spretus* extends from the Great Bend section of the Mexican highland into the southern portion of the basin and range province. The following specimens were examined:

Arizona: cochise co.: Chiricahua Mountains, May 10, June 1–17, July 1; Huachuca Mountains (USNM), Sept. 11 (CNHM); Huachuca Mountains (Carr's Peak), June 25 (USNM); Tombstone, Sept. 14 (CM and CNHM). maricopa co.: Gila Bend, Sept. 15 (CNHM). pima co.: Tucson, Aug. 24 (USNM).

New Mexico: dona ana co.: Las Cruces, Sept. 20 (USNM). grant co.: Faywood, May 31 (CNHM); Silver City, June (CU), July (CAS). hidalgo co.:

Lordsburg, June 9, July 2 (Howden). OTERO CO.: Cloudcroft (USNM); White Sands, Nov. 1 (USNM). LUNA CO.: Deming, July 11 and 12, Sept. 16 and 20 (USNM).

TEXAS: BREWSTER CO.: Chisos Mountains, July 17–19 (CAS); 5 miles east of Marathon, June 7, 5 miles west of Alpine, June 7 (Howden). EL PASO CO.: El Paso, May 12, June 5 (USNM). JEFF DAVIS CO.: 4 miles west of Fort Davis, July 15, 28 miles west of Fort Davis, July 19 (Howden). PRESIDIO CO.: Marfa, May 15 (CU), July 3–6 (USNM); near Presidio, April 4 (USNM).

Total specimens examined: 158.

Subgenus *Pachyphanes* Dietz, 1894

Pachyphanes Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 115, 1894. Type species, by original designation: *Pachytychius discoideus* LeConte, 1876.

DESCRIPTION: Rostrum strongly curved in both sexes (except in *S. corpulentus* LeConte), shorter and stouter in male; smoother and more polished before the antennal insertions in female (fig. 5). Antennae inserted slightly before middle in the female (fig. 5), well before the middle in male. Second segment of antennal funicle distinctly longer than third segment; antennal club more abruptly distinct from funicle than in other subgenera (figs. 31–34). External lobes of mandibles not well developed (fig. 45). Prosternum emarginate at anterior margin and concave; antecoxal ridges indistinct (fig. 35). Body form stouter, more convex dorsally and laterally than in other subgenera (compare figs. 1, 4, 6, 8). Median lobe of male genitalia short, much as in subgenus *Smicronyx*, middorsum lightly sclerotized and sides subparallel (figs. 72–75). Arms of spiculum ventrale of female genitalia forming a rather angular U (fig. 121).

HOST PLANTS: Most of the plants recorded as hosts to species in this subgenus belong to the family Compositae, but there are some exceptions (see table 1, p. 193).

DISTRIBUTION: Species of this subgenus are known to occur only in North America.

Key to Species Groups of Subgenus *Pachyphanes*

1. Prothorax and elytra both marked with a dorsal macula of dark-brown scales, the rest of the scales white or near white . . **discoideus** group (p. 268)
   Prothorax and elytra not marked with a dark dorsal macula 2
2. Body color black, punctures of disk of prothorax transversely oval, interspaces raised to form transverse rugae . . . . . **lineolatus** group (p. 275)
   Body color mostly reddish brown, punctures not transversely oval, but subconfluent, the interspaces forming rugae which run anterolaterally from midline . . . . . **amoenus** group (p. 262)

SMICRONYX AMOENUS GROUP

DESCRIPTION: Prothorax strongly rounded on sides, strongly narrowed and slightly constricted toward apex; punctures of disk

elongate, confluent, interspaces forming rugae which run anterolaterally from the median line; scales of the disk oriented toward median line. Elytra very convex dorsally, so inflated on the sides that they are wider behind the middle than at the base; humeri not prominent; declivities indistinct.

Discussion: The above combination of characters set *S. amoenus* (Say) and *S. convexus*, new species so distinctly apart from the rest of the species in this subgenus that it would be difficult to include those species in either of the other two species groups. *S. lineolatus* Casey and *S. triangularis* Dietz are included in this group by Dietz (1894), but the more prominent humeri, transversely ovate prothoracic punctures, and vittate arrangement of the elytral scales of those species make that alliance seem improbable.

The hind wings of several specimens (both male and female) of both species in this group were examined, and were found to be greatly reduced in each case. Whether or not this means that both species are entirely flightless will, of course, not be established until the hind wings of hundreds of specimens from many points in their respective ranges have been examined.

Map 7 gives the distribution of this group.

Map 7.—Distribution of the specimens examined of the *amoenus* group of *Smicronyx*. ●, *S. amoenus*; ▲, *S. convexus*.

Key to Species of the *Smicronyx amoenus* Group

1. Scales of prothorax and elytra mostly white, mottled with broken patches of light brown scales; rostrum of female rugose punctate laterally before the antennal insertions, rostrum of male bearing a fine median carina behind antennal insertions; prothorax black or nearly so.

S. convexus, new species (p. 266)[4]

Scales of prothorax and elytra mostly light or dark brown; white scales in basal patches on prothorax, in wavy transverse fasciae or short vittae on elytra; rostrum of female punctate but not rugose laterally before antennal insertions, no median rostral carina in males (although there may be a smooth median line); prothorax light or dark reddish brown.

S. amoenus (Say) (p. 264)[5]

Smicronyx amoenus (Say)

FIGURES 72, 120

Tychius amoenus Say, Descriptions of new species of curculionites . . . , p. 26, 1831. Type: believed destroyed. Neotype, here designated: Female, "Missuri," collected by Thomas Say, Naturhistoriska Riksmuseet, Stockholm.

DESCRIPTION: Rostra of both sexes reddish brown to piceous, stout, moderately curved, substriate; finely punctured before antennal insertions, more closely and coarsely punctate and thinly squamose behind the antennal insertions. Antennae reddish brown to piceous. Prothorax reddish brown to piceous, strongly rounded on sides, narrowed and slightly constricted toward apex; covered with a mixture of light brown and dark brown ovate scales, which are oriented from sides and base toward midline; two triangular patches of white or yellowish scales on each side of midline at base. Prosternum shallowly emarginate, slightly concave.

Elytra reddish brown, intervals covered with scales of same colors as those of prothorax, the light brown scales (white in some specimens) arranged in transverse wavy bands; humeri distinct, but not prominent; declivities indistinct. Underside of the thorax and abdomen covered with white or light brown scales, which are broader and more rounded than those of dorsum. Femora clavate, reddish brown, covered with ovate and elongate light brown scales. Tibiae stout, reddish brown, the first two pair slightly expanded at the apex, third pair more strongly expanded at apex. Tarsi piceous, segment three broader than first two segments; claws small, subparallel, connate in about basal third. Spiculum gastrale of male genitalia curved, but not hooked or expanded at anterior end (fig. 72). Stem of spiculum ventrale of female not expanded at anterior end (fig. 120).

MEASUREMENTS: The following measurements were taken from 6 males and 5 females from Glen Echo, Md. (USNM), 3 males and 1

[4] Presently known only from the Great Basin region.
[5] Not known to occur west of the Great Plains region.

female from Beltsville, Md. (USNM), 1 male and 1 female from Roxborough, Pa. (USNM), and 1 female from Glenside, Pa. (USNM).

All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 37	2. 10–2. 50	2. 51	2. 10–2. 65
Elytra length	1. 58	1. 38–1. 70	1. 74	1. 50–1. 80
Elytra width at base	1. 02	0. 86–1. 15	1. 13	0. 92–1. 20
Prothorax length	0. 67	0. 56–0. 70	0. 71	0. 56–0. 80
Prothorax width	0. 87	0. 79–0. 95	0. 94	0. 80–1. 00
Rostrum length	1. 03	0. 96–1. 10	1. 16	1. 10–1. 30
Rostrum length before antennal insertion	0. 36	0. 33–0. 40	0. 45	0. 40–0. 50
Funicular segment 2 length	0. 077	0. 068–0. 102	0. 100	0. 085–0. 102
Funicular segment 3 length	0. 051		0. 064	0. 051–0. 068

Biology: Two host records were taken from the material examined: "On *Helianthus giganteus*," Vienna, Va. (USNM). Hamilton (1886) recorded this species as on "*Ambrosia integrifolia*" (now known to be a form of *A. trifida* L.) in August. The specimens were "identified by Dr. Horn," and, judging from Hamilton's description of them, they probably were specimens of *S. amoenus*. The other record was "*Solidago* sp.," Hocking Co., Ohio, Sept. 11 (ELS).

Discussion: The neotype designated for this species is a female specimen (in excellent condition) which was evidently collected by Thomas Say, determined as *Tychius amoenus* by Say, and sent to the European coleopterist Gyllenhal. It is probably the specimen mentioned by Gyllenhal, in Schoenherr's "Genera et Species Curculionidum" (vol. 3, part 1, 1836), in his description of *Tychius amoenus* Say.

Distribution: Records from the material examined indicate that this species may be found on the Atlantic Coastal Plain, in the southern half of the Appalachian highlands, and in the more eastern and northern portions of the interior plains region. The following specimens were examined:

Connecticut: fairfield co.: Brookfield, July (CM).

District of Columbia: No data (USNM); June 6 and 27, July 22 (USNM).

Florida: palm beach co.: Jupiter, July 10 (CAS).

Illinois: cook co.: Palos Park, July 2 and Aug. 26 (CNHM); Willow Springs, Aug. 21 (CNHM).

Iowa: dickinson co.: Lake Okoboji, July, Aug. 12 (USNM). johnson co.: Iowa City, July 26 (USNM). wright co.: Clarion, July 12 (USNM).

Manitoba: Baldur, July 29 (CNC).

Maryland: montgomery co.: Glen Echo, "summer," June 24, July 9, Aug. 3, Aug. 6 (USNM). prince georges co.: Beltsville, July 12 and 24 (USNM).

Massachusetts: middlesex co.: Framingham, July 25 (ELS).

Missouri: hickory co.: W. Quincy, Aug. 10 (CNHM).

New Jersey: bergen co.: Emerson, Aug. 8, Aug. 12, Sept. 4; Ramsey, Sept. 15 (USNM). essex co.: Caldwell, June 28 (USNM); Montclair, June 28 and Aug. 1 (USNM). morris co.: Lake Hopatcong (AMNH). ocean co.: Lakehurst, July 4 (USNM). passaic co.: Great Notch, Aug. 5 (AMNH). union co.: Rahway, Aug. 1 (USNM). No data (CNC and USNM).

New York: kings co.: Brooklyn (CNHM). westchester co.: Peekskill, June 21 (CU).

North Carolina: moore co.: Southern Pines, June 18 (USNM). pender co.: Burgaw, July 11 (ELS).

Ohio: hamilton co.: Cincinnati, May 25 (USNM). hocking co.: Sept. 2 and 11 (ELS). scioto co.: Sept. 2 (ELS). vinton co.: June 5 (ELS).

Pennsylvania: allegheny co.: Pittsburgh, June 3 and 9 (CM). delaware co.: Glen Olden, June 16 (USNM). montgomery co.: Glenside, June 17 (USNM). westmoreland co.: Jeanette, June 21 (CM).

Saskatchewan: Rutland, Aug. 2 (CNC).

South Carolina: orangeburg co.: Holly Hill, July 9 (USNM).

South Dakota: brown co.: Aberdeen, Aug. 9 (USNM).

Virginia: fairfax co.: Falls Church, Aug. (USNM); Vienna, July 26 (USNM).

West Virginia: greenbrier co.: White Sulphur Springs, July, Aug. (CAS). monongahela co.: Morgantown, Aug. (CAS).

Total specimens examined: 112.

Smicronyx convexus, new species

Figures 149, 154

Description: Rostra of both sexes moderately stout, reddish brown to piceous; rugulose punctate from base to near apex and laterally subcarinate; finely carinate medially to near apex in males, feebly carinate medially behind antennal insertions in females; slightly longer, more tapered than in males, but not smooth, before antennal insertions in females. Antennae reddish brown to piceous, their scales whitish and elongate. Head reddish brown to black, finely alutaceous. Prothorax deep reddish brown to black, convex dorsally, strongly rounded at sides, strongly narrowed and slightly constricted at apex; punctures mostly elongate and confluent, forming wavy, concentric, anterolaterally oriented rugae; covered with a mixture of broadly ovate and elongate scales, which are light to dark brown except for two broad, nearly complete white vittae on the disk and a patch of white scales on each side.

Elytra piceous to reddish brown, slightly wider at the base than the prothorax; scales closely spaced, broadly ovate (except for one row of recumbent setiform scales per interval), white, mottled with irregular patches of brown. Underside of thorax and abdomen reddish brown to piceous, covered with broadly ovate to elongate white scales. Femora stout, distinctly clavate, deep reddish brown, covered

with elongate-elliptic white scales. Tibiae stout, deep reddish brown, thinly covered with rows of linear white scales; hind pair distinctly broadened toward apex. Tarsi black to piceous, covered with elongate white scales; third segment deeply bilobed, much broader than first two segments; fourth segment extending beyond the third by approximately the length of the latter; claws connate for about two-fifths of their length, slightly divergent.

Measurements: The following measurements were taken from 10 males and 8 females from Draper, Utah, August 25 (B. D. Valentine). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 54	2. 00–2. 80	2. 85	2. 70–3. 00
Elytra length	1. 57	1. 30–1. 90	1. 82	1. 70–1. 95
Elytra width at base	1. 06	0. 92–1. 15	1. 16	1. 09–1. 22
Prothorax length	0. 72	0. 56–0. 79	0. 82	0. 76–0. 89
Prothorax width	0. 88	0. 70–1. 00	1. 00	0. 96–1. 06
Rostrum length	1. 06	0. 83–1. 15	1. 22	1. 15–1. 25
Rostrum length before antennal insertion	0. 32	0. 26–0. 41	0. 48	0. 43–0. 53
Funicular segment 2 length	0. 092	0. 068–0. 102	0. 096	0. 085–0. 102
Funicular segment 3 length	0. 060	0. 051–0. 068	0. 064	0. 051–0. 068

Holotype: Male, USNM 65402.

Type locality: Draper, Salt Lake Co., Utah. Collected by B. D. Valentine on August 25, 1953.

Paratypes: 20 males and 17 females taken with the holotype and deposited as follows: 14 males, 12 females in B. D. Valentine collection; 6 males, 5 females in USNM collection.

Biology: The type series was labeled "sweeping roadside weeds, especially *Ambrosia*." No further information on the biology of this species is presently available.

Discussion: This species closely resembles *S. amoenus* (Say), and may eventually be interpreted as an isolated population or subspecies of *S. amoenus* when the distributions of the two are better known. However, there are a number of differences between the presently available specimens of *S. amoenus* and *S. convexus*. *S. convexus* is, on the average, a larger species than *S. amoenus* (see tabulations on pages 265 and 267), has a darker body color than *S. amoenus*, has a low median carina on the rostrum, and a large number of white scales (which give the species a whitish appearance), which is not true of *S. amoenus*. In addition, the shape of the median lobe of the male genitalia differs between the two species (see figs. 72, 154), the stem of the spiculum ventrale (eighth sternum) of the female is much more

expanded in *S. convexus*, and there is some difference in the shape of the spermathecae (see figs. 120, 149).

DISTRIBUTION: At present, *S. convexus* is known only from the type locality (Draper, Utah), which lies at the eastern edge of the Great Basin section of the basin and range province.

SMICRONYX DISCOIDEUS GROUP

DESCRIPTION: Prothorax robust, quite convex dorsally, strongly rounded on the sides, narrowed and very slightly constricted before the apex; scales on all sides oriented toward the middle of the disk, except in *S. centralis* (Dietz). Elytra very convex dorsally, slightly broader near the middle than at the base, humeri and declivities distinct (fig. 4). Always marked with a patch of dark scales on the disk of the prothorax and on the basal half of the elytra.

DISCUSSION: The species presently included in this group are the same species included by Dietz (1894). The most distinguishing feature of this group is the presence of the patches of dark scales on the prothorax and elytra.

Map 8 gives the distribution of this group.

MAP 8.—Distribution of the specimens examined of the *discoideus* group of *Smicronyx*. ⊙, *S. centralis*; ★, *S. corpulentus*; ●, *S. discoideus*.

Key to Species of the *Smicronyx discoideus* Group

1. Prothoracic punctures rounded, the scales of the prothorax oriented toward the center of the disk 2
   Prothoracic punctures transversely oval, interspaces between punctures raised, forming low, wavy rugae, which run laterally from the midline; scales of the prothorax oriented toward the midline.
   S. centralis (Dietz) (p. 273)
2. A distinct posterolateral macula of dark scales present on each elytron, in addition to the dark dorsal macula; surface of antennal club black or piceous . . . . . **S. discoideus** (LeConte) (p. 269)
   No posterolateral maculae present on the elytra; surface of antennal club rufous to ferruginous . . . . . **S. corpulentus** LeConte (p. 271)

Smicronyx discoideus (LeConte)

FIGURES 4–5, 32, 40, 45, 73, 121

Pachytychius discoideus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 169, 1876. Lectotype, here designated: Male, "N.Y.," MCZ 1881 (J. L. LeConte collection).

Pachyphanes carus Dietz, Trans. American Ent. Soc., vol. 21, p. 117, pl. 7, fig. 2, 1894. New synonymy. Type: Male, "Cal.," CM (Ulke collection).

DESCRIPTION: Rostra of both sexes black, moderately stout, rugulose punctate and squamose behind the antennal insertions, more finely punctate (the punctures elongate) before antennal insertions; more elongate and tapered before antennal insertions in female. Head black, finely alutaceous, front sparsely squamose. Antennae entirely black, club elongate-ovate, and thickly pubescent. Prothorax black, punctures of disk coarse, rounded; smooth median line present, slightly raised, abbreviated at both ends; scales white except for those of the brown maculation, which is constricted just anterior to its middle and nearly divided medially by white scales. Prosternum moderately emarginate, shallowly concave.

Elytra black, scales, other than brown scales of the maculations, white; discal maculation broadest at the base of elytra and very irregular in shape; a distinct posterolateral maculation present on each elytron. Ventral surface of the thorax and abdomen closely covered with broadly ovate white scales. Femora clavate, black, covered with elongate-ovate white scales. Tibiae black, covered with elongate white scales; the hind pair slightly expanded at apex. Tarsi black, covered with white scales; first three segments rather short and broad; claws small, connate to near middle, slightly divergent. Internal sac of male genitalia slightly constricted near its middle, apical portion armed with fine spines; spiculum gastrale strongly hooked at its anterior end (fig. 73). Stem of the spiculum ventrale of the female genitalia distinctly expanded at anterior end (fig. 121).

MEASUREMENTS: The following measurements were taken from 3 males and 1 female from Bowmanville, Ill. (CNHM), 1 male and 1 female from "Ill." (CAS), 2 females from "Ill." (CNHM), 1 female from St. Louis, Mo. (CAS), 2 males from Rutland, Sask. (CNC), and 2 females from "Wis." (CNC). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 15	3. 0–3. 4	3. 28	3. 2–3. 4
Elytra length	2. 13	2. 0–2. 4	2. 25	2. 1–2. 4
Elytra width at base	1. 40	1. 32–1. 49	1. 45	1. 38–1. 55
Prothorax length	0. 83	0. 79–0. 86	0. 90	0. 83–1. 00
Prothorax width	1. 10	1. 06–1. 15	1. 17	1. 09–1. 22
Rostrum length	1. 17	1. 15–1. 22	1. 41	1. 35–1. 49
Rostrum length before antennal insertion	0. 39	0. 33–0. 46	0. 55	0. 36–0. 73
Funicular segment 2 length	0. 102		0. 114	0. 102–0. 119
Funicular segment 3 length	0. 065	0. 051–0. 068	0. 065	0. 051–0. 068

BIOLOGY: Relatively little is known about the biology of this species. Schwarz (1884) recorded it as breeding in the flower heads of *Helenium tenuifolium* Nutt.; several specimens from Rutland, Sask., Aug. 2 (CNC) are labeled "Host: *Grindelia*."

DISCUSSION: This species may be quickly distinguished from the other species in this group by the posterolateral dark spots on the elytra.

S. carus (Dietz) is interpreted here as a western population of *S. discoideus* (LeConte), although there are some superficial differences between the two. The type of *S. carus* (Dietz), a specimen from Portola Valley, Calif. (CAS), and a specimen from Elko, Nevada, all have several irregular transverse bands of brownish scales on their elytra, a regularly shield-shaped elytral macula, and rather indistinct posterolateral spots on their elytra. In the eastern population of *S. discoideus*, there are no transverse bands of brownish scales on the elytra, the elytral macula is irregularly shaped, and the posterolateral spots are usually distinct.

DISTRIBUTION: Present records indicate that this species may be found in the central and northern portions of the interior plains and to some extent in the Appalachian highlands. The following specimens were examined:

ILLINOIS: ADAMS CO.: Quincy, June (CAS). COOK CO.: Glenview, April 11 (CNHM); Willow Springs, July 27 (CNHM). "N. Ill." and "Ill." (USNM).

IOWA: DES MOINES CO.: Burlington, Sept. 6 (USNM). DICKINSON CO.: Lake Okoboji, July 28 (USNM). JOHNSON CO.: Iowa City, June 10, July 20 (USNM); Solon, Aug. (USNM). "Ia." (CNC).

MANITOBA: Fairbank, Aug. 28 (CNC).

MISSOURI: ST. LOUIS CO.: St. Louis (USNM); St. Louis, July 10 (CAS).

New Jersey: morris co.: Stirling (USNM). union co.: Berkley Heights (USNM).
Ontario: Ojibiway, Oct. 2 (CNC); Roseland, July 1 (CNC).
Pennsylvania: pike co.: Milford, July 4 (USNM).
Saskatchewan: Rutland, Aug. 2 (CNC).
Wisconsin: "Wis." (CNHM); "Wis" (CNC).
Total specimens examined: 74.

Smicronyx corpulentus LeConte

Figures 74, 122

Smicronyx corpulentus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 170, 1876. Type: Male, Louisiana, MCZ 1882 (J. L. LeConte collection).

Description: Rostra of both sexes black, moderately curved, finely punctate from base to apex, sparsely squamose behind antennal insertions; slightly longer, smoother and more tapered in female than in male. Head black, finely alutaceous, front thinly covered with light yellow scales. Antennae black, club rufopiceous, closely pubescent. Prothorax black, disk closely and coarsely punctate; scales yellowish white to very light brown, except darker brown scales in a subquadrate maculation which covers center of disk.

Scales of elytra white to light brown, except for dark brown scales of discal maculation (which is irregular in shape and very indistinct in some specimens). Venter of thorax and abdomen closely covered with white, broadly ovate scales. Femora moderately clavate, black to rufopiceous, covered with elongate-ovate white scales. Tibiae rufopiceous, slightly expanded at apex, scales similar to those of femora. Tarsi black, covered with yellowish white scales, first three segments rather short and broad, claws connate near base, moderately divergent. Internal sac of male genitalia slightly constricted near middle, apical portion armed with fine spines (fig. 74).

Measurements: The following measurements were taken from 4 males and 2 females from Brownsville, Tex. (USNM), 2 males "Tex." (USNM), 2 males and 2 females from Seabrook, Tex. (CAS), 1 male and 1 female from Birmingham, Ala. (USNM), and 1 female from Atoka, Oklahoma (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 70	2. 30–3. 20	2. 83	2. 50–3. 30
Elytra length	1. 90	1. 60–2. 30	1. 93	1. 60–2. 40
Elytra width at base	1. 19	1. 00–1. 42	1. 25	1. 09–1. 42
Prothorax length	0. 65	0. 56–0. 73	0. 74	0. 69–0. 79
Prothorax width	0. 89	0. 83–1. 06	0. 94	0. 79–1. 09
Rostrum length	0. 97	0. 83–1. 06	1. 14	1. 09–1. 42
Rostrum length before antennal insertion	0. 30	0. 26–0. 36	0. 45	0. 40–0. 49
Funicular segment 2 length	0. 09	0. 068–0. 102	0. 09	0. 085–0. 102
Funicular segment 3 length	0. 048	0. 034–0. 051	0. 051	

BIOLOGY: The following records of host plants were taken from the material examined: "Bred *Helenium* head" and "on *Helenium* sp.," Mineral wells, Tex., June 9 (USNM); "on *Helenium* sp. flowers," New Boston, Tex., April 30 (USNM); "*Helenium tenuifolium*," DeRidder, La., July 6 Mansfield, La., July 4, Fierson, La., Sept. 9, Longansport La., July 5 (USNM); "on *Helenium* sp.," Natchez, Miss., June 16 (USNM); "on *Helenium tenuifolium* flowers," Wilmington, N.C. (USNM); "on *Helenium tenuifolium*," July 11 (B. D. Valentine); "on *Coreopsis*," Okmulgee, Okla., June 23 (USNM); "on *Aphanost-*[*ephus*] *skirrob.*" and "on *Gaillardia pulchella*," Calvert, Tex., May 18 (USNM); "on *Anthemis arvensis*," Hope, Ark., Sept. 11 (USNM); "*Monarda citriodora*," Brownsville, Tex., March 23 (USNM); "Bred *Parosela aurea* head," Wichita Falls, May 11 (USNM); "on *Croton capitatus*," Texarkana, Ark., Sept. 10 (USNM); "Bred *Croton capitat.* seed," Johnson's Bayu, La. (USNM); "on cotton," Mercedes, Tex., Apr. 15 (USNM); "cotton," Brownsville, Tex., Mar. 23 (USNM); "alfalfa," Brownsville, Tex., Mar. 23 (USNM).

DISCUSSION: This species resembles *S. discoideus* in general body shape, coloration, and prothoracic punctation but has no posterolateral spots on the elytra, the discal maculation of the elytra is less distinct than in *S. discoideus*, and the tibiae are reddish as opposed to black in the latter species. There are also some minor differences in the genitalia of the two species (compare figs. 73 and 74, 121 and 122).

DISTRIBUTION: Present records indicate that this species may be found in the southern portion of the interior plains and along the Gulf and Atlantic coastal plains. The following specimens were examined:

ALABAMA: CALHOUN CO.: Oxford, July 11 (B. D. Valentine). DALLAS CO.: Selma (USNM). JEFFERSON CO.: Birmingham, July 13 (USNM). MOBILE CO.: Citronelle (CAS).

ARKANSAS: CLAY CO.: Knobel, Aug. 6 (USNM). HEMPSTEAD CO.: Fulton, Sept. 12 (USNM); Hope, Sept. 11 (USNM). MILLER CO.: Texarkana, Sept. 10 (USNM). PULASKI CO.: Little Rock (USNM).

FLORIDA: BAKER CO.: May 1 (ELS). OSCEOLA CO.: Kissimmee (AMNH). "Swain," Aug. 12 (CU).

GEORGIA: GRADY CO.: Beachton, July 18 (USNM).

KANSAS: TREGO CO.: No data (USNM).

LOUISIANA: BEAUREGARD PARISH: De Ridder, July 6 (USNM). DESOTO PARISH: Fierson, Sept. 9 (USNM); Mansfield, July 4 (USNM); Logansport, July 5 (USNM). MADISON PARISH: Tallulah, July 23 and 25 (USNM).

MARYLAND: BALTIMORE CO.: Sparrows Point, July 4 (CAS).

MISSISSIPPI: ADAMS CO.: Natchez, June 16 (USNM). GEORGE CO.: Lucedale, Aug. 28, Sept. (CU). HINDS CO.: Utica (USNM).

NORTH CAROLINA: NEW HANOVER CO.: Wilmington, Aug. 28 (USNM).

OKLAHOMA: ATOKA CO.: Atoka (USNM); Atoka, June 13–15 (AMNH, CAS, USNM). BRYAN CO.: Calera, Dec. 12 (USNM). CHEROKEE CO.: Tahlequah, June 17 (CU).

TEXAS: BEXAR CO.: San Antonio, May 14, June 3 (USNM). BOWIE CO.: New Boston, June 5, Aug. 29 and 30 (USNM). CAMERON CO.: Brownsville, Feb. 21, March 5 and 23, April 18, June, July (USNM); Rio Hondo, March 19 (USNM). HARRIS CO.: Harrisburg, July 31 (CAS); Seabrook, Aug. 2 and 8 (CAS). HIDALGO CO.: Mercedes, Feb., March 14 and 15 (USNM). HOWARD CO.: Big Springs (CAS, CNC, USNM). LA SALLE CO.: Cotulla, March 28, April 15 (USNM). MATAGORDA CO.: W. Palacios, Aug. 1 (USNM). MAVERICK CO.: Eagle Pass, March 30 (USNM). PALO PINTO CO.: Mineral Wells, June 9 (USNM). PRESIDIO CO.: Presidio, March 21, April 30 (USNM). REFUGIO CO.: Lake Refugio, Aug. 28 (USNM). ROBERTSON CO.: Calvert May 18 (USNM). TRAVIS CO.: Austin, April 28 (USNM). VICTORIA CO.: Victoria, June 29, Sept. 10, Oct. 21 (USNM). WALKER CO.: Riverside, June 21, Aug. 24 (USNM). "Tex." (AMNH, CNHM, USNM).

Total specimens examined: 300.

Smicronyx centralis (Dietz), new combination

FIGURES 75, 123

Pachyphancs centralis Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 118, 1894. Type: Male, "Tex.," MCZ 1883 (Dietz collection).

Pachyphanes lateralis Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 118, 119, 1894. Type: Female, Texas, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes black, moderately stout, punctate from base to apex; squamose behind the antennal insertion; longer, more tapered and less roughly punctate in female. Head black to piceous, front sparsely squamose. Antennae piceous, second funicular segment much longer than third. Prothorax black, punctures of disk transversely oval, interspaces raised as rugae which run laterally from midline; scales white, except brown scales of discal macula, which is rounded and covers most of the disk; prosternum shallowly emarginate, moderately concave.

Elytra black to piceous; macula regularly shield shaped, extending from the base to slightly behind the middle; scales outside macula white, with a scattering of very light brown scales. Ventral surface of the thorax and abdomen covered with broadly ovate white scales. Femora clavate, reddish brown, thinly covered with elongate-ovate white scales. Tibiae reddish brown, slightly expanded at apices. Tarsi piceous, first three segments short and broad; claws small, connate for slightly more than half their length, slightly divergent. Median lobe of male genitalia slightly narrower at the apex than at the base, spiculum gastrale strongly hooked at the anterior end (fig. 75). Stem of the spiculum ventrale of the female genitalia slightly expanded at anterior end (fig. 123).

MEASUREMENTS: The following measurements were taken from 2 males from New Boston, Tex. (USNM), 1 male from "Tex." (USNM), 1 male from "Col." (AMNH), 1 male from Torrance Co.,

New Mexico, 1 male from Medicine Hat, Alberta, 1 female from Okmulgee, Okla. (USNM), and 1 female from Grove Co., Kans. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 60	2. 40–2. 70	2. 87	2. 85–2. 90
Elytra length	1. 75	1. 60–1. 90	1. 95	1. 90–2. 00
Elytra width at base	1. 08	1. 03–1. 22	1. 25	1. 22–1. 29
Prothorax length	0. 68	0. 66–0. 73	0. 72	0. 69–0. 76
Prothorax width	0. 83	0. 76–0. 89	0. 89	0. 86–0. 92
Rostrum length	1. 00	0. 96–1. 06	1. 11	1. 03–1. 19
Rostrum length before antennal insertion	0. 35	0. 33–0. 36	0. 52	0. 49–0. 56
Funicular segment 2 length	0. 105	0. 102–0. 119	0. 102	
Funicular segment 3 length	0. 056	0. 051–0. 068	0. 068	

BIOLOGY: The only available biological information on this species is a single host-plant record, "on *Coreopsis*," Okmulgee, Okla., June 24 (USNM).

DISCUSSION: Blatchley and Leng (1916) considered *S. centralis* (Dietz) a synonym of *S. corpulentus* LeConte because they could not separate the two species on the basis of Dietz' description of *S. centralis*. However, Dietz failed to mention that the interspaces of the prothoracic disk are raised into rugae, that the prothorax punctures are transversely ovate, and that the femora are reddish in his single specimen. None of the last-mentioned characteristics are shared by *S. corpulentus*.

The type and only specimen of *Pachyphanes lateralis* Dietz differs slightly from the type specimen of *Smicronyx centralis* Dietz in having a sutural stripe of light brown scales on the elytra and in not having distinct transverse rugae on the disk of the prothorax. However, because there is otherwise so little difference between those specimens, the type of *P. lateralis* is interpreted here as a variant specimen of *S. centralis*.

DISTRIBUTION: Present records indicate that this species may be found in the southern and northern portions of the interior plains. Future collections may reveal the presence of *S. centralis* in the central portion of that region. The following specimens were examined:

ALBERTA: Lethbridge, June 5 and July 12 (CNC); Medicine Hat, June 14 (CNC).

OKLAHOMA: LEFLORE CO.: Wister, July 3 (USNM). OKMULGEE CO.: Okmulgee, June 24 (USNM).

NEW MEXICO: TORRANCE CO.: No data (USNM).

TEXAS: BOWIE CO.: New Boston, June 5 (USNM). LASALLE CO.: Cotulla, April 15 (USNM). "Tex." (USNM).

Total specimens examined: 11.

SMICRONYX LINEOLATUS GROUP

DESCRIPTION: Prothorax much as in the *S. discoideus* group, but at least slightly constricted at apex; punctures of disk transversely elliptical, interspaces raised to form transverse ridges; scales of the disk oriented toward midline, not the center, of disk. Elytra broadest at the base in all species, the humeri fairly prominent. Not marked with a patch of dark scales on either prothorax or elytra.

DISCUSSION: This group is apparently most closely allied to the *S. discoideus* group on the basis of the pronotal punctures, which are transversely elliptical in this group and in *S. centralis* (Dietz) of the *discoideus* group.

Map 9 gives the distribution of this group.

Key to Species of the *Smicronyx lineolatus* Group

1. Antennae and femora black or piceous; fifth intervals of elytra bearing nearly complete vittae of white scales; short white vittae at bases of third intervals and behind humeri; vittae *not* joined to form a diagonal line on each elytron . . . . . **S. lineolatus** Casey (p. 275)

   Antennae and femora distinctly reddish; incomplete vittae of fifth, sixth, and seventh elytral intervals joined to form a distinct diagonal white line on each elytron; no short white vitta present at base of third interval. **S. triangularis** (Dietz) (p. 277)

Smicronyx lineolatus Casey

FIGURES 48, 49, 124

Smicronyx lineolatus Casey, Ann. New York Acad. Sci., vol 6, pp. 385–386, 1892. Lectotype, here designated: Male, Illinois, USNM 36698 (T. L. Casey collection).

DESCRIPTION: Rostra of both sexes black, stout, strongly curved, closely but not coarsely punctate and thinly squamose behind the

MAP 9.—Distribution of the specimens examined of the *lineolatus* group of *Smicronyx*. ●, *S. lineolatus*; ▲, *S. triangularis*.

antennal insertions, finely and remotely punctate before the antennal insertions. Head black, finely alutaceous, the front sparsely squamose. Antennae black, the club elongate-ovate, thickly pubescent. Prothorax black; scales reddish brown and white, the white scales arranged in four rather indefinite vittae and a very short vitta at the middle near the base; prosternum moderately emarginate and concave.

Elytra black, the white scales condensed, forming a full-length vitta on the fifth interval, and short vittae at the base of the third and seventh intervals; intervals otherwise covered by a mixture of dark brown, reddish brown and white scales, the reddish brown scales forming wavy transverse bands. Undersurface of the thorax and abdomen covered with a mixture of white and light reddish brown scales; metepisternum covered with white scales. Femora piceous, strongly clavate, covered with ovate, pale grayish scales. Tibiae piceous, covered with elongate light grayish scales; slightly expanded at their apices. Tarsi black, the first three segments rather short and broad; fourth segment exceeding the third by about half its own length; claws connate near the base, moderately divergent. Internal sac of male genitalia not extending back between the median struts, its apical portion armed with fine spines; spiculum gastrale expanded, but not hooked at the anterior end. Stem of spiculum ventrale of female genitalia moderately expanded at anterior end.

MEASUREMENTS: The following measurements were taken from 2 males and 1 female from South McAlester, Okla. (USNM), 2 males from Summit, Ill. (CNHM), 1 female from Southern Illinois (USNM), 1 female from Corpus Christi, Tex. (USNM), 1 female from Victoria, Tex. (USNM), and 3 females from Weatherford, Tex. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 10	2. 90–3. 30	3. 30	2. 80–3. 50
Elytra length	2. 10	2. 00–2. 20	2. 15	1. 90–2. 40
Elytra width at base	1. 28	1. 15–1. 32	1. 32	1. 19–1. 45
Prothorax length	0. 78	0. 73–0. 83	0. 82	0. 76–0. 96
Prothorax width	0. 91	0. 86–1. 00	0. 97	0. 86–1. 06
Rostrum length	1. 17	1. 12–1. 22	1. 36	1. 25–1. 45
Rostrum length before antennal insertion	0. 38	0. 33–0. 46	0. 62	0. 53–0. 66
Funicular segment 2 length	0. 131	0. 119–0. 153	0. 128	0. 102–0. 153
Funicular segment 3 length	0. 068		0. 070	0. 051–0. 085

BIOLOGY: The following host-plant records were taken from the material examined: "*Rudbeckia amplexicaulis*," Victoria, Tex., Apr. 11–29 (USNM); "*Rudbeckia amplexicaulis*," Dallas, Tex., May 7; "on nigger heads," Victoria, Tex., Apr. 23 (USNM); "on *Monarda*,"

Weatherford, Tex., June 9, (USNM); "Bred *Callirrhoe involucrat.* bud," Victoria, Tex., May 28 (USNM).

Discussion: This species may be distinguished from *S. triangularis* (Dietz) by the more reddish femora, oblique lines of white scales on the elytra, and smaller size of *S. triangularis* as opposed to the dark femora, longitudinal vittae of white elytral scales and larger size of *S. lineolatus*.

Distribution: Present records indicate that this species may be found in the southern, central and eastern portions of the interior plains region and on the Gulf coastal plain in Texas. The following specimens were examined:

Illinois: cook co.: Palos Park, June 13 (CNHM); Summit, May 29 (CNHM). "Southern Illinois" (USNM).

Indiana: vanderburgh co.: Evansville, May 27 (USNM).

Iowa: dickinson co.: Lake Okoboji, July 22 (USNM). johnson co.: Iowa City, May 15, June 12–17 (USNM).

Kansas: riley co.: June 13 (USNM).

Ohio: scioto co.: June 11 (ELS).

Oklahoma: pittsburg co.: South McAlester, June 11 (CAS and USNM).

Texas: bowie co.: New Boston, June 5 (USNM). colorado co.: Columbus, April 6 (USNM). dallas co.: Dallas, May 7–8 (USNM). limestone co.: Mexia, May 17 (USNM). neuces co.: Corpus Christi, April 13 (USNM). parker co.: Weatherford, June 9 (USNM). victoria co.: Victoria, April 11, 23, 29, May 11 and 28 (USNM).

Total specimens examined: 105.

Smicronyx triangularis (Dietz), new combination

Figures 125, 156

Pachyphanes triangularis Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 120, pl. 7, figs. 7 and 7a, 1894. Lectotype, here designated: Male, Texas, MCZ 1884 (Dietz collection).

Description: Rostra of both sexes black except for ferruginous apex; finely and remotely punctate from base to apex, very sparsely covered with white scales behind antennal insertions. Head black, finely alutaceous. Antennae entirely ferruginous. Prothorax black, shining, a smooth median line feebly indicated on disk; sparsely covered with a mixture of light reddish brown and white scales; prosternum shallowly emarginate, slightly concave.

Elytra black to piceous, the intervals covered with a mixture of medium brown and white scales, the white scales arranged in two irregular diagonal lines, which run from humeri nearly to median suture, and in two or more transverse wavy bands, which lie between and behind the oblique lines. Underside of the thorax and abdomen closely covered with broadly ovate white scales. Femora ferruginous, moderately clavate, covered with elongate-ovate white scales. Tibiae ferruginous, thinly covered with elongate white scales. Tarsi fer-

ruginous to piceous, the third segment much broader than first two segments; claws small, connate for almost half their length, slightly divergent. Stem of spiculum ventrale of female genitalia only slightly expanded at the anterior end (fig. 125).

MEASUREMENTS: The following measurements were taken from the type specimen (a male), 2 females and 1 male from Victoria, Texas (USNM), and 1 male from Cotulla, Texas (USNM). The antennae of the type were badly obscured by a sticky residue and therefore were not measured. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 50	2. 20–2. 70	2. 70	2. 50–2. 90
Elytra length	1. 60	1. 40–1. 80	1. 75	1. 60–1. 90
Elytra width at base	1. 11	1. 03–1. 20	1. 25	1. 10–1. 40
Prothorax length	0. 68	0. 66–0. 70	0. 72	0. 65–0. 80
Prothorax width	0. 80	0. 73–0. 85	0. 85	0. 80–0. 90
Rostrum length	0. 93	0. 89–1. 00	1. 20	1. 10–1. 40
Rostrum length before antennal insertion	0. 27	0. 26–0. 30	0. 47	0. 45–0. 50
Funicular segment 2 length	0. 102	0. 085–0. 119	0. 102	
Funicular segment 3 length	0. 068	0. 051–0. 085	0. 068	

BIOLOGY: The following host-plant records were taken from the material examined: "on *Rudbeckia*," Victoria, Tex., May 10 (USNM); "*Rudbeckia amplexicaulis*," Victoria, Tex., March 23 and 29 (USNM); "Ex *Rudbeckia*," Columbus, Tex., March 10 (ELS).

DISCUSSION: Although Dietz (1894) described this species from "five specimens in Dr. Horn's collection," only the lectotype and seven specimens from Texas have been examined by the writer. Material collected in the future may indicate that *S. triangularis* is only a form of *S. lineolatus* Casey, but the material examined can be separated from *S. lineolatus* by the characteristics already mentioned in the discussion of *S. lineolatus*. It should also be noted that the anterior end of the stem of of the spiculum ventrale of the female genitalia is more expanded in *S. lineolatus* than in *S. triangularis* (compare figs. 124–125).

DISTRIBUTION: The locality records of the material examined indicate that this species may be found in Texas on the Gulf coastal plain. The following specimens were examined:

TEXAS: COLORADO CO.: Columbus, March 10 (ELS). LA SALLE CO.: Cotulla, Apr. 15 (USNM). VICTORIA CO.: Victoria, Apr. 23 and 29, May 10 (USNM). "Tex.," Apr. 20 (B.D. Valentine).

Total specimens examined: 7.

Subgenus *Pseudosmicronyx* Dietz, 1894

Pseudromicronyx Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 156, 1894. Type species here designated: *Tychius corniculatus* Fahraeus, 1843.

Pseudosmicronyx Klima, *in* Schenkling, Coleopterorum catalogus . . . vol. 28, part 140, p. 90, 1934. (Emendation.)

Synertha Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 172, 1894. Type species here designated: *Smicronyx imbricatus* Casey, 1892.

Description: Rostrum moderately curved in both sexes; longer, much smoother and more polished before the antennal insertions in the female than in the male (figs. 7, 25) except in *S. imbricatus* Casey. Antennae inserted at the approximate middle of the rostrum in the female (fig. 7), slightly anterior the middle in the male (fig. 24). Second segment of the antennal funicle distinctly longer than the third segment (fig. 33). External lobes of the mandibles moderately developed (fig. 46). Prosternum emarginate at the anterior margin and concave, but without distinct antecoxal ridges (fig. 36). Humeri well developed and the scutellum small but distinct (figs. 6, 23). Tarsal claws less connate and more divergent than in the subgenus *Smicronyx* (figs. 39, 41). Median lobe of the male genitalia varying from one species to another in length, lightly sclerotized dorsally and ventrally, the sides subparallel (figs. 76–92). Arms of the spiculum ventrale of the female genitalia elongate, forming a V, not a U, in all but the *S. griseus* and *S. imbricatus* groups (figs. 134, 135).

Host plants: The majority of the plants recorded as hosts or possible hosts of species in this subgenus belong to the family Compositae, but representatives of some other families have been recorded as possible hosts (see table 1).

Distribution: Species presently placed in *Pseudosmicronyx* have been recorded only from North America.

Discussion: As in the works of Champion (1902) and Pierce (1939), the genus *Synertha* is being treated here as part of the genus *Smicronyx*. Pierce pointed out that a number of species (including *S. sculpticollis* Casey, *S. tychoides* LeConte and *S. silaceus* Casey) which were not originally included in *Synertha* have their eyes nearly contiguous ventrally, as in *S. imbricatus* (the only valid species originally included in *Synertha*). The nearly (or actually) contiguous condition of the eyes was the character used by Dietz (1894) to separate *Synertha* from *Smicronyx*. Because *S. sculpticollis*, *S. tychoides*, and *S. silaceus* all share the general characteristics of the subgenus *Smicronyx*, and *S. imbricatus* exhibits the general characteristics of the subgenus *Pseudosmicronyx*, it is apparent that the distance

between the eyes cannot be used to separate *Synertha* from the rest of the genus *Smicronyx*. Therefore, *S. imbricatus* has been placed in the subgenus which it most closely resembles, *Pseudosmicronyx*, and *Synertha* becomes a synonym of that subgenus.

Key to the Species Groups of Subgenus *Pseudosmicronyx* [6]

1. Elytra distinctly inflated; prothorax strongly rounded at sides (fig. 26). **ovipennis** group (p. 305)
   Elytra not inflated (although convex in some species); prothorax only moderately or slightly rounded at sides 2
2. Rostra of both sexes squamose from base to near apex; prothorax subcylindrical; elytra elongate, subparallel at sides . . **imbricatus** group (p. 302)
   Rostrum of the female distinctly glabrous before antennal insertions; prothorax rounded at sides or, if nearly subcylindrical, the elytra convex, not elongate 3
3. Form elongate; elytra only slightly broader than prothorax at base; scales (except setiform scales) unicolorous; punctures of prothorax rounded, evenly spaced, not confluent; propygidium of male bearing long setae on posterior margin (fig. 38) . . . . . **resplendens** group (p. 319)
   Form more robust; elytra much broader than prothorax at base (as in figs. 6 and 23); if scales are unicolorous, punctures of prothorax are confluent or in rows running anterolaterally from midline; propygidium of male without long setae 4
4. Scales of prothorax and elytra light silvery gray, except for a sutural stripe of brownish scales on elytra (absent in some specimens) and brownish scales on disk of prothorax . . . . . **griseus** group (p. 314)
   Scales of prothorax and elytra never gray and brown, as above 5
5. Humeri very prominent, elytra rather convex; prothorax nearly subcylindrical, slightly narrowed at apex and bearing three longitudinal patches of white scales . . . . . **abnormis** group (p. 312)
   Humeri distinct but not prominent (figs. 6, 23); elytra not very convex, prothorax not nearly subcylindrical, distinctly narrowed near apex (figs. 6, 23), bearing no more than one patch of white scales 6
6. Third tarsal segment much broader than first two; rostrum not roughly punctate behind antennal insertions; elytral declivities distinct (figs. 6, 23); punctures of prothorax confluent or partly confluent (fig. 23) in all but *S. utilis* Buchanan and *S. commixtus* Dietz . . **corniculatus** group (p. 280)
   Third tarsal segment only slightly broader than first two; elytral declivities indistinct; rostrum roughly punctate behind antennal insertions; punctures of prothorax in anterolateral rows running from midline, but not confluent. **obtectus** group (p. 298)

SMICRONYX CORNICULATUS GROUP

Description: Body elongate-ovate, moderately stout. Rostrum moderately curved in both sexes, much more smooth and shining

[6] Although the grouping of species in this study is based on both external and genitalic characters, this key is based only on external characters (as are the other keys). If the reader has difficulty in using this key, he may find a comparison of the genitalia with the descriptions and figures of those structures helpful in determining the groups.

before antennal insertions in the female; basal tufts of scales erect and prominent (figs. 7, 23). Prothorax moderately rounded on sides, narrowed and slightly constricted toward apex; punctures of disk oval to elongate-elliptical, confluent in some species, arranged in rows running anterolaterally from midline (fig. 7). Elytra subparallel on the sides, humeri and declivities distinct (fig. 7). Median lobe of the male genitalia moderately elongate, similar in shape to that of the *S. obtectus* group (compare figs. 76, 82).

Discussion: The species of this group are more similar to those of the *S. obtectus* and *S. imbricatus* groups than to the species of the other groups of *Pseudosmicronyx* in general body-form and male genitalia (compare figs. 76, 82, 84). *S. imbricatus* is distinct from the species of the *S. corniculatus* group in having a subcylindrical prothorax and almost completely squamose rostrum. In the two species of the *S. obtectus* group, the rostrum is more coarsely punctate, the elytra are less convex, and the third tarsal segment is narrower than in the *S. corniculatus* group.

Map 10 gives the distribution of this group.

Map 10.—Distribution of the specimens examined of the *corniculatus* group of *Smicronyx* ▲, *S. californicus*; △, *S. immaculatus*; ★, *S. commixtus*; +, *S. pallidus*; ●, *S. corniculatus*; ⊙, *S. perpusillus*; ○, *S. flavicans*; ◬, *S. utilis*.

Key to the Species of the *Smicronyx corniculatus* Group

1. All scales white 2
   White scales mixed with scales of another color 4
2. Rostrum, elytra, and femora distinctly reddish; prothorax black, punctures of the disk not confluent . . . . . **S. commixtus** Dietz (p. 294)
   Rostrum, prothorax, elytra, and femora black, piceous or brown but never reddish; punctures of disk confluent 3
3. Prothorax and elytra black to piceous, sides of prothorax distinctly rounded. **S. californicus** Dietz (p. 287)
   Entire body reddish brown, sides of prothorax nearly parallel from base to point of convergence toward apex . **S. immaculatus,** new species (p. 292)
4. Punctures of prothoracic disk not confluent, or if some punctures are confluent, no oblique rugae present, transverse patches of white elytral scales very indistinct 5
   Punctures of prothoracic disk confluent, the interspaces forming oblique wavy rugae; transverse patches of white or light scales usually distinct . 6
5. Prothorax suddenly narrowed toward apex, punctures of disk deep; body length usually greater than 2.0 mm . . . . . **S. utilis** Buchanan (p. 296)
   Prothorax not suddenly narrowed toward apex, punctures shallow; body length less than 2.0 mm. . . . . **S. perpusillus** Casey (p. 286)
6. Rugae of prothoracic disk raised as distinct ridges, not flat; scales of prothorax gray, brown, or white, but never yellow 7
   Rugae of prothoracic disk flat, part of scales of prothorax and elytra distinctly yellow . . . . . **S. flavicans** LeConte (p. 290)
7. Scales of rostrum, prothorax, and elytra mostly grayish white, mottled with light brown on elytra; prothorax black or nearly so; body length usually near 2.70 mm. . . . . **S. pallidus,** new species [7] (p. 288)
   Scales of rostrum, prothorax, and elytra mostly light to medium brown, mottled with white on elytra; prothorax medium to dark reddish brown; body size usually smaller than above, nearer 2.30 mm. in length. **S. corniculatus** (Fahraeus) (p. 282)

Smicronyx corniculatus (Fahraeus)

Figures 6, 7, 33, 76, 126

Tychius corniculatus Fahraeus, *in* Schoenherr, Genera et species curculionidum . . . , vol. 7, part 2, p. 319, 1843. Lectotype, here designated: Male, "Pensylvan.," collected by Zimmermann; Naturhistoriska Riksmuseet, Stockholm (Schoenherr collection).

Smicronyx squamulatus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 173, 1876. Lectotype, here designated: Female, Detroit, Michigan, collected by Hubbard and Schwarz, MCZ 1923 (J. L. LeConte collection).

Smicronyx spurcus Casey, Ann. New York Acad. Sci., vol. 6, p. 393, 1892. New Synonymy. Type: female, Texas, USNM 36705 (T. L. Casey collection).

Smicronyx connivens Casey, Ann. New York Acad. Sci., vol. 6, p. 398, 1892. New synonymy. Type: Female, St. Louis, Missouri, Sept. 8, 1889, collected by Hugo Soltau, USNM 36707 (T. L. Casey collection).

Smicronyx columbianus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 162, 163, pl. 8, figure 22, 1894. Lectotype, here designated: Male, "D.C.," MCZ 1912 Dietz collection).

Smicronyx lanuginosus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 165, 1894. Lectotype, here designated: Male, "Pa.," MCZ 1914 (Dietz collection).

[7] Not known to occur outside of the Great Basin region.

Smicronyx fallax Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 158, 1894 (preoccupied by *Micronyx fallax* Gyllenhal, *in* Schoenherr, Genera et species curculionidum . . . , vol. 3, 1836). Lectotype, here designated: Male, Luling, Texas, MCZ 1908 (Dietz collection).

Smicronyx fallaciosus Klima, *in* Schenkling, Coleopterorum catalogus . . . , vol. 28, part 140, p. 95, 1934 (replacement name for *Smicronyx fallax* Dietz, 1894). New synonymy.

DESCRIPTION: Rostrum of male rugulose punctate behind antennal insertions; somewhat rugulose, deeply punctate before antennal insertions; similar but more tapered, smoother, more shining, sparsely and finely punctate before antennal insertions in female; squamose behind antennal insertions in both sexes, scales forming a distinct tuft on each side of base of rostrum. Antennae reddish brown to piceous, their scales grayish white. Prothorax reddish brown to piceous, moderately rounded on sides, moderately convex dorsally; punctures confluent, interspaces forming wavy ridges running anterolaterally from midline; scales a mixture of brownish and light gray, oriented toward midline, a few light scales forming a short median vitta near base.

Elytra widest at base, humeri prominent, declivities distinct; scales imbricate, white, grayish, and light brown in color; white scales grouped in small, scattered patches, dark scales varying in intensity of color, causing some specimens to appear lighter than others. Scales of venter light gray, broader and more rounded than those of dorsum. Femora reddish brown, covered with a mixture of ovate and elongate grayish white scales. Tibiae reddish brown, covered with linear grayish white scales. Third segment of tarsus broader than first two segments, deeply bilobed, fourth segment rather elongate, claws connate near their bases, fairly divergent. Median lobe of male genitalia (fig. 76) moderately elongate, lightly sclerotized at middorsum, slightly expanded at apex. Arms of spiculum ventrale of female forming a fairly well-defined V (fig. 126).

MEASUREMENTS: The following measurements were taken from 5 males and 3 females from Oswego, N.Y. (CU), 6 males and 6 females from Jeannette, Pa. (CM), 4 males and 6 females from Valley of the Black Mountains, N.C. (AMNH). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 35	2. 10–2. 60	2. 35	2. 20–2. 60
Elytra length	1. 66	1. 40–1. 90	1. 67	1. 40–1. 85
Elytra width at base	0. 94	0. 80–1. 10	0. 94	0. 80–1. 10
Prothorax length	0. 61	0. 48–0. 70	0. 62	0. 55–0. 70
Prothorax width	0. 70	0. 55–0. 80	0. 71	0. 60–0. 80
Rostrum length	0. 88	0. 75–1. 00	0. 97	0. 90–1. 00
Rostrum length before antennal insertion	0. 36	0. 30–0. 40	0. 49	0. 45–0. 55
Funicular segment 2 length	0. 076	0. 068–0. 085	0. 087	0. 085–0. 102
Funicular segment 3 length	0. 050	0. 034–0. 051	0. 052	0. 051–0. 068

BIOLOGY: The writer collected *S. corniculatus* from the foliage of *Ambrosia artemisiifolia* L. in 1957 at Dryden, N.Y. (Aug. 17), Oswego, N.Y. (Aug. 18), and Ithaca, N.Y. (Aug. 20, Aug. 31–Sept. 11). No larvae were obtained from the seeds of the *Ambrosia* during that time, although the seeds of several dozen of the plants from which the weevils had been collected were examined.

A few other host-plant records were taken from the collection of B.D. Valentine: "On *Ambrosia artemisiifolia*," Crescent City, Fla., Sept. 14, Enterprise, Fla., Sept. 14, Sparr, Fla., Sept. 16; "sweeping *Ambrosia artemisiifolia*," Milford, Delaware, Sept. 11.

DISCUSSION: After examining the type or lectotype specimens of the species listed in synonymy under *Smicronyx corniculatus* (Fahraeus), the writer has concluded that they are conspecific with the lectotype of *S. corniculatus*.

Buchanan (1941) placed the names *Smicronyx connivens* Casey and *Smicronyx spurcus* Casey in synonymy with *Smicronyx vestitus* LeConte. However, examination of the type specimen of *S. vestitus* LeConte has proved that species to have the general features of the subgenus *Smicronyx* (as shown on p. 232), a black prothorax and pale rufous elytra. The type specimens of *S. connivens* Casey and *S. spurcus* Casey share the general features of the subgenus *Pseudosmicronyx* (see p. 279), have piceous elytra, and appear to be specimens of *S. corniculatus* with lighter scales.

DISTRIBUTION: The numerous records indicate that *S. corniculatus* is widely distributed on the Atlantic and Gulf coastal plains, in the Appalachian highlands, and in the central lowlands. The following specimens were examined:

DISTRICT OF COLUMBIA: Washington (CU); Washington, July 18 and 30, Aug. 3 and 6 (USNM); "Eastern Branch," July 8 (USNM); "D.C." (USNM).

FLORDIA: DUVAL CO.: Jacksonville, May 30 (USNM).

ILLINOIS: COOK CO.: No data (CNHM); Beverly Hills, Sept. 11 (CNHM). DUPAGE CO.: Downer's Grove, Aug. 4–5 (CNHM); Glen Ellyn, Sept. 9 (CNHM). "S. Ill," Aug. 8 (USNM).

INDIANA: KOSIUSKO CO.: July 14 (CM). LAKE CO.: Hessville, Sept. 5 and 22, Oct. 11 (CM). LA PORTE CO.: La Porte, (CM). MARION CO.: May 6 (CU). PORTER CO.: Beverly Shores, June 28 (CNHM). PUTNAM CO.: May 15 (CU). TIPPECANOE CO.: Lafayette, Aug. 17 (USNM).

IOWA: DICKINSON CO.: Lake Okoboji, Aug. 22 (USNM). JOHNSON CO.: Iowa City, Sept. 3 and 9 (USNM). STORY CO.: Ames, July (USNM).

KANSAS: "Kans." (USNM). POTTAWATOMIE CO.: Onaga (USNM). SHAWNEE CO.: Topeka, June (CM).

MARYLAND: BALTIMORE CO.: Sparrows Point, July 4–9 (USNM). MONTGOMERY CO.: Cabin John, Oct. (USNM); Glen Echo, June 24, July 16, Aug. 1 and 24 (USNM). PRINCE GEORGES CO.: Beltsville, June 30, July 9 and 24, Aug. 31 (USNM); Bladensburg, July 19, Sept. 4 (USNM); Hyattsville, Aug. 2 (USNM); Riverdale, July 10 (USNM).

Massachusetts: hampden co.: Agawam, July 31 (USNM); Springfield, July 16 (USNM); middlesex co.: Framingham, Aug. 20 (CAS); Sherborn, Aug. 31 (USNM); Sherborn, Sept. 6 (CU).

New Jersey: bergen co.: Dundee Lake, July 4 (USNM); Ramsey, Sept. 4–11 (USNM). camden co.: Atco, Sept. 11 (CAS); Clementon, May 6 (USNM). cape may co.: Cape May, July 13 (CAS). essex co.: Irvington (USNM); Newark (USNM). gloucester co.: Downer, Aug. 16 (CU); Malaga, Aug. 4 (USNM). hudson co.: Arlington (USNM). middlesex co.: South River (USNM). morris co.: Chester, July 5, Sept. 5 and 9 (AMNH); Lake Hopatcong (AMNH). passaic co.: Great Notch, Sept. 8 (USNM). warren co.: Phillipsburg, July 27 (CAS).

New York: "N. Y." (USNM). oswego co.: Oswego, July 24, Aug. 6 and 12 (CU); Oswego, Aug. 18 (DMA); New York City and vicinity (USNM). orange co.: West Point, Sept. 7 (USNM). tompkins co.: Dryden, Aug. 18 (DMA); Ithaca (no data) (USNM); Ithaca, Jan. 8 (CU); Ithaca, Aug. 4, Sept. 7 (USNM); Ithaca, Aug. 20, Aug. 31–Sept. 11 (DMA). westchester co.: No data (CNHM).

North Carolina: buncombe co.: Valley of the Black Mountains, Aug. 14-27 (AMNH); Black Mountains, June (AMNH). moore co.: Southern Pines, June 13, July 30 (USNM).

Ohio: "O." (USNM). hamilton co.: Cincinnati, July 25 (USNM). van wert co.: Van Wert, Sept. 1 (USNM).

Ontario: kent co.: Bothwell, June 14 (CNC); Chatham, June 20 and 31, Aug. 18 and 22, Sept. 4 (CNC); Point Pelee, June 2 (CNC).

Pennsylvania: allegheny co.: No data (CM and USNM); Aug. 1 and 7 (CU); Pittsburgh, June 2–22, July 1–30, Aug. 2 and 4, Sept., Oct. 1 (CM). delaware co.: Glen Olden, June 16 (USNM). luzerne co.: Wyoming, Sept. 30 (USNM). monroe co.: Del. Water Gap (AMNH); Effort, Aug. 6 (CAS). northampton co.: Easton, July 16 (USNM); Lehigh Gap, Aug. 15, Sept. 5 (USNM); Wind Gap, Aug. 1 (CAS). philadelphia co.: Angora, June 15 (USNM); Philadelphia, Aug. 21 (USNM). westmoreland co.: Jeannette, May 28, June 1–30, July 1–15 Aug 1–3, Nov. 1 and 4 (CM). york co.: Hanover, June 15 (USNM).

Quebec: Montreal Point, July 25 (CNC).

Texas: cameron co.: Brownsville, June (USNM). caldwell co.: Luling (USNM). dallas co.: Dallas, May 18 (USNM). val verde co.: Del Rio, May 1 (USNM).

Virginia: nelson co.: July 15 and 25, Aug. 11 (USNM). spotsylvania co.: Fredericksburg, Aug. (CAS).

West Virginia: greenbrier co.: White Sulphur Springs, July, Aug. (CAS). marion co.: Fairmont, June 28 (CAS). monongahela co.: Aug. (CAS).

Wisconsin: bayfield co.: Bayfield (USNM). walworth co.: Delavan, Aug. 4 (CNHM).

Total specimens examined: 521.

Smicronyx perpusillus Casey

Smicronyx perpusillus Casey, Ann. New York Acad. Sci., vol. 6, pp. 405–406, 1892. Type: Female, Enterprise, Fla., USNM 36714 (T. L. Casey collection).

Smicronyx minutissimus Blatchley, Journ. New York Ent. Soc., vol. 36, p. 244, 1928. New synonymy. Type: Male, "Dunedin, Fla.," April 20, 1925, collected by W. S. Blatchley, Purdue University (W. S. Blatchley collection).

DESCRIPTION: Rostra of both sexes piceous, moderately curved, only slightly tapered from base to apex; squamose and closely but not coarsely punctate behind antennal insertions; finely punctate and faintly bicarinate before antennal insertions in male; smooth, shining, sparsely punctate before antennal insertions in female. Head piceous, thinly squamose in front and above eyes. Antennal scape, funicle, and club piceous to rufous. Prothorax black, reddish near apex; sides subparallel until convergent near apex; disk covered with elliptic punctures, intervals faintly raised into wavy rugae; scales white, ovate (except setiform scales); prosternum moderately emarginate, distinctly concave.

Elytra black, each interval bearing two rows of white or light brown, ovate, nearly contiguous scales. Underside of thorax and abdomen black, covered with ovate white scales. Femora rufous, covered with linear and ovate white scales. Tibiae rufopiceous, covered with elongate, white scales. Tarsi rufopiceous, third segment distinctly broader than first two; fourth segment extending well beyond third; claws connate near their bases, moderately divergent.

MEASUREMENTS: The following measurements were taken from the type specimen (a female), and a male and a female from Crescent City, Fla. (collection of B. D. Valentine). All measurements are in millimeters:

	Male	*Females*	
		Mean	*Extremes*
Body length	1. 90	1. 70	1. 60–1. 80
Elytra length	1. 40	1. 20	1. 10–1. 30
Elytra width at base	0. 79	0. 69	0. 65–0. 73
Prothorax length	0. 49	0. 45	0. 45–0. 46
Prothorax width	0. 56	0. 52	0. 45–0. 59
Rostrum length	0. 76	0. 68	0. 65–0. 72
Rostrum length before antennal insertion	0. 30	0. 33	0. 30–0. 36
Funicular segment 2 length	0. 068	0. 068	
Funicular segment 3 length	0. 034	0. 034	

BIOLOGY: The single host-plant record was taken from the material examined: "On *Ambrosia artemisiifolia*," Crescent City, Fla., Sept. 14 (B. D. Valentine).

DISCUSSION: The few specimens examined of this species resemble *S. corniculatus* (Fahraeus) but differ from that species in having

mostly separate punctures on the prothorax, the thorax and elytra nearly black, and mostly white elytral scales as opposed to confluent prothoracic punctures, a brownish body color, and most of the elytral scales brownish.

The type specimens of *S. perpusillus* Casey and *S. minutissimus* Blatchley resemble each other so closely it does not seem likely they represent two species.

Distribution: This species has been recorded only from the Florida peninsula. The following specimens were examined:

Florida: duval co. Jacksonville, May 30 (USNM). pinellas co.: St. Petersburg, Aug. 18–26 (CU). putnam co.: Crescent City, Sept. 14 (B. D. Valentine). volusia co.: Enterprise, Sept. 5 (B. D. Valentine).

Total specimens (other than type) examined: 6.

Smicronyx californicus Dietz

Figures 77, 127

Smicronyx californicus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 163, 164. 1894. Lectotype, here designated: Male, "Cal.," MCZ 1913 (Dietz collection).

Description: Rostra of both sexes piceous, moderately curved; squamose, sparsely punctate behind antennal insertions; smooth, shining, almost impunctate before antennal insertions in female; sparsely punctate, not smooth or shining before antennal insertions in male. Head black, finely alutaceous; thinly squamose over base of rostrum. Antennae piceous; their scales white. Prothorax black; strongly rounded at sides; moderately narrowed toward apex; punctures of disk confluent, interspaces forming oblique wavy rugae; closely covered with white ovate scales and a few elongate white scales; prosternum shallowly emarginate, slightly impressed transversely.

Elytra black to piceous, intervals covered with ovate to elliptical white scales; humeri distinct, not prominent. Underside of thorax and abdomen black, closely covered with ovate white scales. Femora piceous, moderately clavate, covered with elongate white scales. Tarsi rufopiceous, third segment much broader than first two; claws connate near their bases, moderately divergent. Median lobe of male genitalia slightly broadened toward apex, internal sac covered with fine spines (fig. 77); spiculum gastrale not hooked at anterior end (fig. 77). Arms of spiculum ventrale forming a distinct V; stem very slightly expanded at apex (fig. 127).

Measurements: The following measurements were taken from 1 male from Los Angeles Co., Calif. (USNM), 1 male from Los Angeles, Calif. (USNM), 1 male and 1 female from Laguna Beach, Calif.

(USNM), and 1 female from Santa Ana, Calif. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 75	2. 60–2. 85	2. 60	
Elytra length	1. 98	1. 90–2. 05	1. 90	
Elytra width at base	1. 11	1. 06–1. 19	1. 05	1. 03–1. 06
Prothorax length	0. 67	0. 59–0. 73	0. 66	
Prothorax width	0. 82	0. 76–0. 89	0. 74	0. 73–0. 74
Rostrum length	1. 03	1. 00–1. 06	1. 06	
Rostrum length before antennal insertion.	0. 36	0. 33–0. 40	0. 49	
Funicular segment 2 length	0. 085		0. 085	
Funicular segment 3 length	0. 051		0. 068	

BIOLOGY: No information is presently available on the biology of this species.

DISCUSSION: *S. californicus* resembles *S. corniculatus* (Fahraeus) in respect to body shape and proportions, prothoracic punctation, and shape of the male genitalia (figs. 76, 77). However, *S. corniculatus* does not have the black (or nearly black) body color and all-white scales which are characteristic of *S. californicus*. In addition, the female genitalia of the two species are slightly different in shape.

DISTRIBUTION: *S. californicus* has been recorded only from the coast of southern California. The following specimens have been examined:

CALIFORNIA: LOS ANGELES CO.: No data (USNM). ORANGE CO.: Laguna Beach, July 13 (USNM), Santa Ana, July 6 (USNM). SAN DIEGO CO.: Poway (CAS).

Total specimens examined: 6.

Smicronyx pallidus, new species

FIGURES 150, 157

DESCRIPTION: Rostrum of both sexes only moderately stout, deep reddish brown to piceous; closely, somewhat rugulosely punctate before antennal insertions and closely, very coarsely punctate behind antennal insertions; tapered, polished, and finely punctate before antennal insertions, shallowly but coarsely punctate behind antennal insertions in females; closely covered with elliptical brownish-white scales behind antennal insertions in both sexes. Antennae reddish brown throughout, their scales linear and whitish. Head black to piceous, finely alutaceous, sparsely squamose in front. Prothorax black to piceous, broadly rounded at sides, gradually narrowed and slightly constricted at apex; punctures shallow, confluent, so that interspaces form raised, wavy rugae which run anterolaterally from midline; closely covered with a mixture of narrow and elliptical pale brownish gray scales.

Elytra reddish brown to piceous, closely covered with imbricate, ovate, grayish white scales (nearly white in some specimens), faintly mottled with irregular transverse fasciae of light grayish brown scales (nearly absent in some specimens); curled setiform scales of each interval grayish white or brownish. Underside of thorax and abdomen piceous to reddish brown, closely covered with broadly ovate, grayish white scales (some tinged with brown). Femora and tibiae reddish brown, covered with a mixture of elongate and ovate grayish white scales. Tarsi reddish brown, covered with elongate grayish scales; third segment distinctly broader than first two; fourth segment exceeding the third by slightly more than the length of the latter; claws connate for slightly more than a third of their length, moderately divergent.

Measurements: The following measurements were taken from 5 males and 10 females from Draper, Utah, Aug. 25 (B. D. Valentine). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 73	2. 50–2. 85	2. 69	2. 50–2. 85
Elytra length	1. 80	1. 60–1. 90	1. 75	1. 60–1. 90
Elytra width at base	1. 06	0. 96–1. 09	1. 06	1. 00–1. 12
Prothorax length	0. 73	0. 66–0. 79	0. 73	0. 69–0. 76
Prothorax width	0. 83	0. 73–0. 86	0. 80	0. 73–0. 86
Rostrum length	0. 93	0. 83–1. 06	1. 09	1. 03–1. 12
Rostrum length before antennal insertion	0. 36	0. 33–0. 40	0. 52	0. 46–0. 56
Funicular segment 2 length	0. 098	0. 085–0. 102	0. 102	
Funicular segment 3 length	0. 061	0. 051–0. 068	0. 061	0. 051–0. 068

Holotype: Male, USNM 65403

Type locality: Draper, Salt Lake Co., Utah. Collected by B. D. Valentine on August 25, 1953.

Paratypes: 18 females and 4 males from Draper, Utah, Aug. 25, 1953 (collected at type locality by B. D. Valentine) and 1 female from Salt Lake, Utah, June 17, 1932 (USNM), deposited as follows: 2 males, 5 females in USNM; 1 male, 2 females in DMA; 2 males, 10 females in B. D. Valentine collection.

Biology: The material from Draper, Utah was labeled: "Sweeping roadside weeds, especially *Ambrosia*." Other host-plant records were as follows: "Ragweed," Lewiston, Utah, Aug. 25 (USNM); "on *Chenopodium*," Salt Lake, Utah, June 17 (USNM).

Discussion: This species resembles *S. corniculatus* (Fahraeus) in general body shape and proportions, prothoracic punctation, and color of elytral scales. However, it is, on the average, a larger species with a darker body color, lighter scale colors (resulting in a fainter color pattern), and a less strongly rounded prothorax than in *S.*

corniculatus. In addition, the apex of the median lobe of the male genitalia in this species is not distinctly broadened at the apex, as it is in *S. corniculatus*.

DISTRIBUTION: Available locality records indicate that this species may be found at the eastern edge of the Great Basin section of the basin and range province.

Smicronyx flavicans LeConte

FIGURES 78, 128

Smicronyx flavicans LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 171, 1876. Type: Male, Texas, collected by Belfrage, MCZ 1892 (J. L. LeConte collection).

Smicronyx nebulosus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 157, 158, 1894 (preoccupied by *Smicronyx nebulosus* Tournefort, 1874). Lectotype here designated: Male, New Jersey, MCZ 1906 (Dietz collection).

Smicronyx ornatipennis Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 158, pl. 8, fig. 21, 1894. New synonymy. Lectotype, here designated: Female, Texas, CM (Ulke collection).

Smicronyx maculatus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 162, pl. 8, fig. 20a, 1894. New synonymy. Lectotype, here designated: Male, Allegheny Co., Pennsylvania, collected by Hamilton, MCZ 1911 (Dietz collection).

Smicronyx dietzi Klima, *in* Schenkling, Coleopterorum catalogus . . ., vol. 28, part 140, p. 95, 1934 (replacement name for *Smicronyx nebulosus* Dietz, 1894). New synonymy.

DESCRIPTION: Rostra of both sexes piceous, moderately curved, squamose behind antennal insertions, basal tufts distinct; subcarinate, coarsely but not closely punctate from base to apex in male; slender, shining, finely and sparsely punctate before antennal insertions in female. Head deep reddish brown, finely alutaceous, front sparsely squamose. Prothorax piceous to reddish brown, broadly rounded at sides, narrowed and slightly constricted near apex; punctures of disk oval, subconfluent, interspaces forming low anterolaterally oriented rugae; scales ovate, yellowish, white, or light brown in color, the white scales condensed at the sides; prosternum moderately emarginate, shallowly concave.

Elytra dark reddish brown, humeri elevated; scales ovate, their colors same as the scales of prothorax; whitish scales condensed on humeri, on bases of third intervals and in indistinct, wavy transverse bands. Underside of thorax and abdomen covered with broadly ovate whitish scales. Femora moderately clavate, rufous, covered with elongate and ovate yellowish scales. Tibiae rufous, covered with elongate yellowish white scales. Tarsi ferruginous, third joint much broader than first two; fourth joint greatly exceeding third; claws connate only near their bases, fairly divergent. Median lobe of male genitalia having a transverse, partitionlike structure behind

median orifice (fig. 78). Stem of spiculum ventrale of female genitalia markedly expanded at anterior end (fig. 128).

Measurements: The following measurements were taken from 15 males and 15 females, which were collected at several localities, including Easton, Pa. (CAS), Wyoming, Pa. (USNM), Phillipsburg, N.J. (CAS), Oakwood, N.Y. (USNM), Fort Sheridan, Ill. (CNHM), Louisville, Ky. (USNM), Beltsville, Md. (USNM), Leamington, Ont. (CNC), and Lincoln, Nebr. (USNM). All measurements are in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	3. 00	0. 133	2. 70–3. 20	3. 06	0. 108	2. 85–3. 25
Elytra length	2. 04	0. 104	1. 80–2. 20	2. 06	0. 051	2. 00–2. 20
Elytra width at base	1. 30	0. 042	1. 20–1. 40	1. 31	0. 028	1. 20–1. 40
Prothorax length	0. 81	0. 043	0. 70–0. 90	0. 84	0. 047	0. 80–0. 90
Prothorax width	0. 93	0. 041	0. 85–1. 00	0. 97	0. 041	0. 90–1. 00
Rostrum length	1. 16	0. 074	1. 10–1. 30	1. 30	0. 182	1. 20–1. 45
Rostrum length before antennal insertion	0. 40	0. 030	0. 35–0. 45	0. 64	0. 039	0. 55–0. 70
Funicular segment 2 length	0. 104		0. 102–0. 119	0. 119		0. 102–0. 153
Funicular segment 3 length	0. 067		0. 051–0. 068	0. 069		0. 068–0. 085

Biology: The host records which follow were taken from the material examined: "On *Ambrosia trifida* floral parts," Oakwood, N.Y., Sept. 7 (USNM); "On *Oenethera biennis* flower buds," Bronx Co., N.Y., Aug. 14 (USNM); "on cotton," Dennison, Texas, June 22 (USNM); "coll. on cotton," Waco, Texas, July 22 (USNM); "reared from fruit and flower of giant ragweed," Kinderhook, Illinois, Aug. 25, Sept. 4 (USNM); "*Ambrosia*-sp.," Westerville, Ohio, July 31 (ELS).

Discussion: A direct comparison of the lectotype specimens of the species listed in synonymy and the type specimen of *S. flavicans* LeConte did not reveal any differences which could not be either individual or regional variation. The yellow scales of the type of *S. flavicans* are brighter yellow than those of *S. nebulosus* and *S. maculatus*, but the color pattern, body shape and proportions, and prothoracic sculpturing are very similar in all three specimens.

A discussion of the differences between *S. flavicans* and *S. immaculatus*, new species, is given in the discussion of the latter, on page 294.

Distribution: According to present records, the range of *S. flavicans* extends from the Atlantic coastal plain in Maryland across the Appalachian highlands and into the central lowlands, where it may be found from Iowa to Texas. The following specimens were examined

ILLINOIS: COOK CO.: Riverside, May 21 (CNHM). LAKE CO.: Fort Sheridan, June 19 (CNHM). MCLEAN CO.: Bloomington, July 28 (USNM); Bloomington, Aug. 27 (CNC). PIKE CO.: Kinderhook, Aug. 25, Sept. 4 (USNM).

INDIANA: MARION CO.: July 14 (CU). "Ind." (CM).

IOWA: CHEROKEE CO.: July 7 (USNM).

KANSAS: SHAWNEE CO.: Topeka, Aug. 24 (USNM).

KENTUCKY: JEFFERSON CO.: Louisville, Sept. 3 (USNM).

MARYLAND: PRINCE GEORGES CO.: Beltsville, Aug. 31 (USNM).

NEBRASKA: LANCASTER CO.: Lincoln, July (USNM).

NEW JERSEY: ESSEX CO.: Newark (USNM). WARREN CO.: Phillipsburg, Aug. 8 (CAS).

NEW YORK: BRONX CO.: Bronx, Aug. 14 (USNM); Van Cortlandt Park, Aug. 9 (AMNH). CAYUGA CO.: Oakwood, Sept. 7 (USNM). ORANGE CO.: West Point, Sept. 2 (USNM). QUEENS CO.: Rosedale, Aug. 31 (CU). "L.I." (USNM). "N.Y. City & Vcty." (USNM).

OHIO: DELAWARE CO.: Aug. 15 (ELS). FRANKLIN CO.: July 31 (ELS). LICKING CO.: Aug. 16 (ELS). LUCAS CO.: July 10 (ELS). WASHINGTON CO.: Aug. 28 (ELS).

ONTARIO: ESSEX CO.: Leamington, May 25 (CNC).

PENNYSLVANIA: ALLEGHENY CO.: Aug. 14 (CU); Wyoming, Aug. 21 (USNM). NORTHAMPTON CO:. Easton, Aug. 15 and 25, Sept. 7 (CAS).

TEXAS: GRAYSON CO.: Denison, June 22 (USNM). MCLENNAN CO.: Waco, July 9 and 22, Aug. 3 (USNM).

VIRGINIA: NELSON CO.: July 21, Aug. 2 and 12 (USNM).

Total specimens examined: 108.

Smicronyx immaculatus, new species

FIGURES 23–25, 79, 129

DESCRIPTION: Body reddish brown, covered with white, overlapping scales. Rostrum of both sexes moderately arcuate; squamose behind antennal insertions, with a distinct tuft of scales at each side of base. Rostrum of male rugulosely punctate laterally before antennal insertions, dorsally and laterally behind antennal insertions. Rostrum of female smooth and polished before antennal insertions; sparsely punctate behind antennal insertions. Head finely alutaceous, with a dorsal patch of scales. Prothorax subquadrate, the sides subparallel, until narrowed toward apex. Dorsal surface of prothorax obliquely and shallowly rugose punctate and covered with white ovate scales, obliquely oriented toward a median line of anteriorly oriented scales. Prosternum shallowly emarginate anteriorly and without distinct antecoxal ridges.

Elytra moderately convex, humeri and declivities distinct. Elytral striae distinct, with elongate punctures; intervals slightly convex, slightly wrinkled transversely, bearing three to five uneven rows of ovate, overlapping scales and a single central row of elongate, widely spaced scales. Scales of ventral surface of thorax and abdomen much broader and more rounded than scales on dorsal surface. Femora moderately clavate, covered with a mixture of broad and narrow

scales similar to those on elytra. Tibiae almost straight, scales similar to those on elytra. Tarsal claws connate for approximately the basal two-fifths and slightly divergent. Scutellum small, barely visible, covered with small scales. Median lobe of male genitalia slightly over two and one-half times longer than its width at base, and somewhat shorter than its struts (fig. 79). Dorsal and ventral surfaces of the median lobe much more lightly sclerotized than sides; sides slightly divergent toward apex but otherwise subparallel; internal sac constricted near middle, the apical section armed with small dark spines (fig. 79). Spiculum gastrale curved and broadened at the anterior end but not hooked (fig. 79). Female genitalia with a Y-shaped spiculum gastrale with unexpanded stem; vagina completely membranous (fig. 129).

Measurements: The following measurements were taken from a series of 6 males and 15 females from Wrightsville Beach, N.C. (Aug. 17), plus 9 males from Holden Beach, N.C. (Sept. 2). All measurements are in millimeters:

	Males			*Females*		
	Mean	*s*	*Extremes*	*Mean*	*s*	*Extremes*
Body length	3. 00	0. 181	2. 50–3. 20	3. 06	0. 207	2. 60–3. 30
Elytra length	2. 08	0. 160	1. 70–2. 30	2. 09	0. 158	1. 70–2. 30
Elytra width at base	1. 19	0. 081	1. 00–1. 30	1. 21	0. 304	1. 00–1. 40
Prothorax length	0. 79	0. 042	0. 70–0. 85	0. 82	0. 166	0. 70–0. 90
Prothorax width	0. 94	0. 053	0. 80–1. 00	1. 01	0. 169	0. 85–1. 05
Rostrum length	1. 23	0. 113	1. 00–1. 50	1. 56	0. 285	1. 40–1. 70
Rostrum length before antennal insertion	0. 52	0. 028	0. 45–0. 60	0. 84	0. 196	0. 70–0. 90
Funicular segment 2 length	0. 123		0. 102–0. 136	0. 140		0. 136–0. 153
Funicular segment 3 length	0. 060		0. 051–0. 068	0. 080		0. 051–0. 085

Holotype: Male, USNM 65405

Type locality: Wrightsville Beach, N.C. Type collected August 17, 1944, by "Mallia."

Paratypes: 8 males, 20 females from Wrightsville Beach, N.C., Aug. 17, 1944, Mallia, USNM. 4 males from Holden Beach, N.C. Sept. 2, 1944, Mallia, USNM.

Biology: The following host-plant records were taken from the material examined. "On *Iva imbricata* seed pods," Holden Beach, N.C.; "r[eare]d—larva feeding on *Iva* sp.," Atlantic Beach, N.C.; "on *Iva imbricata* foliage and blossoms," Wrightsville Beach, N.C.; "on *Iva axillaris*," Pawley's Island, S.C.; "on *Iva imbricata*," Myrtle Beach, S.C.; "on *Croton punctatus*," Carolina Beach, N.C.; "on strawberries," Rocky Mount, N.C.

DISCUSSION: In the *corniculatus* group, *Smicronyx flavicans* LeConte bears the strongest resemblance to *S. immaculatus*. The resemblance is particularly strong in regard to general body-shape and proportions, sculpturing of the prothorax and male genitalia (see figs. 78, 79). The two species can be instantly distinguished, however, by the color of the scales, which are entirely white in *immaculatus* but mostly various shades of brown and yellow in *flavicans*. It is of interest to note that the genera *Ambrosia* (known host genus of *S. flavicans*) and *Iva* (host of *S. immaculatus*) are evidently closely related.

The results of some F comparisons of *S. immaculatus* and *S. flavicans* LeConte are given below; $n=15$ in all samples. A single asterisk indicates an F value significant at the 5 percent level; a double asterisk indicates an F value significant at the 1 percent level:

	F values	
	Males	*Females*
Body length	3. 53	0. 14
Elytra length	0. 78	0. 06
Elytra width	5. 40*	8. 75**
Prothorax length	3. 60	0. 83
Prothorax width	3. 00	1. 07
Rostrum length	7. 90**	35. 54**
Rostrum length before antennal insertion	11. 79**	36. 64**

DISTRIBUTION: Known only from the Atlantic Coastal Plain of North and South Carolina, with exception of one record (Rocky Mount, N.C.) from the Piedmont Plateau in North Carolina. The following specimens were examined:

NORTH CAROLINA: BRUNSWICK CO.: Holden Beach, Sept. 2 (USNM). CARTERET CO.: Atlantic Beach, Nov. 16 (USNM). EDGECOMBE CO.: Rocky Mount, March 3 (Howden). NEW HANOVER CO.: Carolina Beach, July 4, "mid-Aug." (Howden); Wrightsville Beach, Aug. 17 (USNM).

SOUTH CAROLINA: GEORGETOWN CO.: Pawley's Island, Aug. 28 (USNM). HORRY CO.: Myrtle Beach, Aug. 6 (USNM).

Total specimens examined (other than type series): 86.

Smicronyx commixtus Dietz

FIGURES 80, 130

Smicronyx commixtus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 160, 1894. Lectotype, here designated: Male, "Helena, Mont.," MCZ 1910 (Dietz collection).

Smicronyx caseyi Blatchley, Canadian Ent., vol. 48, p. 10, 1916. Lectotype, here designated: Male, "Indiana," Purdue University (W. S. Blatchley collection).

DESCRIPTION: Rostra of both sexes rufous, moderately curved, squamose behind antennal insertions; substriate, sparsely and finely punctate before antennal insertions in male; smooth, nearly impunc-

tate, shining in female. Antennae rufous, the scales whitish. Head black, finely alutaceous, bearing a dense patch of scales above base of rostrum. Prothorax black to piceous, moderately rounded at sides, moderately narrowed toward apex; closely covered with rounded punctures; scales white, elliptical; prosternum moderately emarginate, not concave.

Elytra entirely rufous; intervals thinly covered with elliptical white scales, humeri elevated. Underside of thorax and abdomen brown, thinly covered with ovate, white scales. Femora rufous, covered with elliptical, white scales. Tibiae rufous, scales white, elongate and elliptical. Tarsi rufous; third segment much broader than first two; claws black, connate at their bases, moderately divergent. Sides of median lobe of male genitalia subparallel, internal sac heavily covered with small, broad spines at sides; spiculum gastrale hooked at anterior end (fig. 80). Arms of spiculum ventrale of female genitalia forming a V; stem slightly dilated at anterior end (fig. 130).

Measurements: The following measurements were taken from 3 males and 1 female from Garden City, Kans. (USNM), 4 males and 5 females from Mesa Co., Colorado (CNHM), 3 males and 4 females from Lyleton, Manitoba (CNC). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 20	1. 90–2. 60	2. 24	2. 00–2. 40
Elytra length	1. 60	1. 40–1. 90	1. 57	1. 40–1. 70
Elytra width at base	0. 84	0. 73–1. 03	0. 81	0. 76–0. 89
Prothorax length	0. 51	0. 43–0. 59	0. 51	0. 43–0. 56
Prothorax width	0. 58	0. 49–0. 69	0. 56	0. 49–0. 63
Rostrum length	0. 81	0. 66–0. 92	0. 90	0. 79–1. 03
Rostrum length before antennal insertion	0. 31	0. 26–0. 33	0. 46	0. 40–0. 53
Funicular segment 2 length	0. 066	0. 051–0. 068	0. 070	0. 068–0. 085
Funicular segment 3 length	0. 036	0. 034–0. 051	0. 041	0. 034–0. 051

Biology: The host-plant records which follow were taken from the material examined: "Host *Iva xanthifolia*," Lyleton, Man., Aug. 23 (CNC); "on sunflower," Garden City, Kans., May 22, 26, 29 (USNM); "on *Xanthium*," Salt Lake, Utah, June 21 (USNM); "*Salsola pestifer*," 1 mile south of Chama, N. Mex., July 18 (USNM); "Russ. thistle," Moffat Co., Colo., July 24 (CM); "sugar beets," Elsinore, Utah, Aug. 5 (USNM); "alfalfa blossom," Lethbridge, Alberta, June 23 (CNC).

Discussion: This species and *S. utilis* Buchanan resemble each other in body shape and proportions, punctation of the prothorax, and scale color. However, as pointed out by Buchanan (1941), the rostra and elytra of *S. commixtus* are distinctly reddish, while the same structures are black or nearly so in *S. utilis*. Although the male

genitalia of the two species are similar in shape, the internal sac bears a longitudinal band of dark spines on each side in *S. commixtus*, but not in *S. utilis*.

After examining the type specimens of *S. caseyi* Blatchley and *S. commixtus* Dietz, the writer has concluded that Buchanan (1941) was correct in stating that these two names are synonymous.

DISTRIBUTION: Records from the material examined indicate that the range of *S. commixtus* extends from the Central lowlands in Kansas westward across the Great Plains into the Southern Rocky Mountains, Northern Rocky Mountains and Great Basin region. The following specimens were examined:

ALBERTA: Lethbridge, May 6 and June 23 (CNC); Medicine Hat, Aug. 22 (CNC); Medicine Hat, Aug. 16 (CAS); Medicine Hat, Aug. 24 (USNM).

COLORADO: ADAMS CO.: Denver, June, June 17 (USNM); Denver, July (CM). CAFFEE CO.: Buena Vista, April 7 (USNM). EL PASO CO.: Colorado Springs June 15, June 15–30 (USNM); Colorado Springs, June 15–30 (AMNH); GUNNISON CO.: Coal Creek Canyon, July 11 (USNM). HUERFANO CO.: La Veta, April 7 (USNM). LARIMER CO.: Fort Collins, Sept. 6 (USNM); Poudre River, May (USNM). MESA CO.: Mesa, July 13–31, Aug. 6–31 (CNHM). MOFFAT CO.: July 24 (CM). PUEBLO CO.: Pueblo, May 20 (USNM). "Col." Aug. (USNM). "Colo." (CM, CU, USNM).

IDAHO: ADA CO.: Parma, Aug. 13 (CAS).

KANSAS: FINNEY CO.: Garden City, May 22–29 (USNM). ROOKS CO.: Stockton, July 7 (CAS). SHAWNEE CO.: Topeka, June (CM). WALLACE CO.: Wallace (CAS); Wallace, July (USNM). "Kans." (CNC).

MANITOBA: Lyleton, Aug. 23 (CNC).

MONTANA: CUSTER CO.: Miles City, July 23 (USNM). GALLATIN CO.: Bozeman, Montana Experiment Station, June 30, Aug. 20 (USNM); Gallatin Canyon, July 30 (CNC). JEFFERSON CO.: May 22 (USNM). LEWIS AND CLARK CO.: Helena (CNC). MEAGHER CO.: Montana Experiment Station, Aug. 22 (USNM). MUSSELSHELL CO.: Musselshell, Montana Experiment Station, Aug. 21 (USNM). "Mont." (AMNH & CNHM).

NEW MEXICO: RIO ARRIBA CO.: July 18 (USNM). TORRANCE CO.: no data (USNM).

SASKATCHEWAN: Swift Current, Sept. 12 (CNC).

SOUTH DAKOTA: JACKSON CO.: Cedar Pass, July 22 (USNM).

UTAH: BEAVER CO.: Milford, July 7 (USNM). SALT LAKE CO.: Murray, Aug. 22 (USNM); Salt Lake, June 21 (USNM). SEVIER CO.: Elsinore, Aug. 5 (USNM). UINTAH CO.: July 15–18 (CM). UTAH CO.: Provo, Aug. (CAS).

Total specimens examined: 298.

Smicronyx utilis Buchanan

FIGURES 81, 131

Smicronyx utilis Buchanan, Proc. Ent. Soc. Washington, vol. 43, No. 2, pp. 29–32, figs. 1–5, 7–11, 1941. Holotype: Male, Regina, Saskatchewan, Canada, June 15, 1939, collected by J. G. Rempel, USNM 54279.

DESCRIPTION: Rostra of both sexes reddish to piceous, moderately curved, thinly squamose behind antennal insertions; feebly carinate

laterally and medially behind antennal insertions, punctate and sometimes feebly carinate before antennal insertions, in male; only traces of carinae behind antennal insertions, smooth, finely punctate before antennal insertions in female. Head black, finely alutaceous, thinly squamose above antennal insertions. Prothorax black, moderately rounded at sides, narrowed some distance behind apex; punctures deep, rounded, closest medibasally where interspaces form short transverse rugae; scales light brown with a scattering of gray, mostly ovate and subtruncate, a few linear and pointed.

Elytra black to piceous; humeri distinct, subangular; scales, except usual setiform scales, ovate, white, gray, or light brown, so arranged that brown scales form indistinct, wavy bars. Underside of thorax and abdomen black, closely covered with small, ovate, pale gray scales. Femora rufous, moderately clavate, covered with small, elliptical white scales. Tibiae rufopiceous, covered with linear, white scales. Tarsi rufopiceous, third segment distinctly broader than first two; fourth segment considerably exceeding third, claws connate near their bases, moderately divergent. Median lobe of male genitalia gradually broadened toward apex, internal sac rather granulate near median orifice, covered with fine spines elsewhere (fig. 81).

Measurements: The following measurements were taken from 3 male and 3 female topotypes from Regina, Sask. (USNM, CNC) and 1 male and 2 female paratypes from Regina, Sask. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 40	2. 00–2. 70	2. 56	2. 30–2. 70
Elytra length	1. 35	1. 30–1. 90	1. 76	1. 50–1. 90
Elytra width at base	0. 95	0. 76–1. 12	0. 99	0. 86–1. 09
Prothorax length	0. 57	0. 49–0. 66	0. 60	0. 59–0. 66
Prothorax width	0. 67	0. 56–0. 76	0. 68	0. 59–0. 76
Rostrum length	0. 85	0. 79–0. 96	0. 96	0. 79–1. 03
Rostrum length before antennal insertion	0. 29	0. 26–0. 36	0. 41	0. 33–0. 46
Funicular segment 2 length	0. 063	0. 051–0. 068	0. 076	0. 068–0. 085
Funicular segment 3 length	0. 034		0. 050	0. 034–0. 051

Biology: Rempel and Shevkenek (1941) made a study of the biology of *S. utilis* in Saskatchewan. A summary of their findings follows.

The only known host plant of this weevil is poverty weed, *Iva axillaris* Pursh. The adult weevils appeared on the plants in early June, when the poverty weed began to blossom. Copulating pairs were first noted about June 10, and the first oviposition was noted about June 20. In ovipositing, the females chewed circular holes through the bracts of the involucres of the flower heads and into the

ovaries. The eggs were then deposited singly (one per ovary) in the ovaries. After a week to 10 days, the larvae hatched from the eggs and began feeding on the cotyledons of the embryos. By the second week in July, the larvae began to mature. Measurements of the head-capsules and mandibles of 61 larvae indicated 4 larval instars. After maturing, the larvae emerged through openings chewed in the bases of the seeds and buried themselves in the upper 2 inches (rarely deeper) of soil. The emergence of the larvae continued from mid-July until about mid-August. Pupation did not take place until about the end of the following May. Descriptions of the immature stages were given but are not included here.

DISCUSSION: A discussion of the differences between *S. utilis* and *S. commixtus* Dietz is given in the discussion of the latter species on page 295. Buchanan (1941) gave a thorough discussion of the differences between those two species, along with his description of *S. utilis* and illustrated his discussion with drawings of parts of both species.

DISTRIBUTION: The records taken from the material examined and from the work of Rempel and Shevkenek (1941) indicate that *S.utilis* has a widespread distribution in the Great Plains and central lowlands portions of Saskatchewan. The following specimens were examined:

SASKATCHEWAN: Regina, June 20 (topotypes, USNM); June 20 (topotypes, CNC); June 15 (paratypes, USNM).

Total specimens examined: 23.

SMICRONYX OBTECTUS GROUP

DESCRIPTION: Body elongate ovate. Rostrum only slightly curved; deeply and coarsely punctate behind the antennal insertions. Prothorax moderately rounded at sides, suddenly narrowed and slightly constricted toward apex; punctures of disk rounded, evenly spaced. Elytra not very convex, humeri distinct, but not prominent, declivities indistinct. Third tarsal segment only slightly broader than first two segments.

DISCUSSION: The species of this group and those of the *S. corniculatus* group are similar in respect to general body form and proportions and shape of the male genitalia, but the two groups may be distinguished by several minor differences. In the *S. corniculatus* group, the rostrum is not deeply and coarsely punctate behind the antennal insertions, the declivities of the elytra are distinct, and the third tarsal segment is distinctly broader than the first two segments. None of the last statements is true of the *S. obtectus* group. In addition, in most of the species of the *S. corniculatus* group the disk of the prothorax is covered with channels or rugae, but neither condition is found in the *S. obtectus* group.

Map 11 gives the distribution of this group.

MAP 11.—Distribution of the specimens examined of the *obtectus* group of *Smicronyx*. ●, *S. albidosquamosus*; ▲, *S. obtectus*.

Key to the Species of the *Smicronyx obtectus* Group

1. All scales white or nearly white, hind tibiae only slightly expanded toward apex . . . . . **S. albidosquamosus** Klima (p. 301)
   Scales mostly yellowish brown on prothorax and elytra, the few white scales in scattered patches; hind tibiae more distinctly expanded toward apex. **S. obtectus** LeConte (p. 299)

Smicronyx obtectus LeConte

FIGURES 82, 132

Smicronyx obtectus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 171, 1876. Lectotype, here designated: Male, San Diego, California, collected by J. L. LeConte, MCZ 1918 (J. L. LeConte collection).

DESCRIPTION: Rostra of both sexes black, distinctly curved, stout at base, but tapered toward apex, roughly punctate and squamose behind antennal insertions; deeply punctate, subcarinate before antennal insertions in male, smooth, sparsely punctate before antennal insertions in female. Head black, finely alutaceous, a broad patch of whitish scales above base of rostrum. Antennae black, with light yellowish-brown scales. Prothorax black, shape and punctation as in group description; scales, except a few setiform scales, broadly elliptical, yellowish brown with a scattering of white; prosternum moderately emarginate, transversely impressed.

Elytra black, each interval bearing two rows of broadly ovate scales, which are light yellowish brown with a scattering of white. Femora black, strongly clavate, covered with ovate and linear yellowish brown scales. Tibiae black, covered with elliptical and linear yellowish brown

scales. Tarsi black, first three segments short and broad, third segment slightly wider than first two; fourth segment extending well beyond third; claws connate near their bases, moderately divergent. Median lobe of male genitalia slightly broadened near apex, internal sac not exceeding median lobe in length. Arms of spiculum ventrale of female genitalia forming a V; stem distinctly expanded at its anterior end (fig. 82).

MEASUREMENTS: The following measurements were taken from 5 males and 7 females from Newport, Calif. (USNM) and 3 males and 1 female from San Diego, Calif. (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 33	2. 20–2. 60	2. 56	2. 20–2. 70
Elytra length	1. 65	1. 50–1. 80	1. 74	1. 50–1. 90
Elytra width at base	0. 88	0. 79–1. 00	0. 93	0. 76–1. 06
Prothorax length	0. 64	0. 59–0. 66	0. 77	0. 69–0. 83
Prothorax width	0. 66	0. 59–0. 73	0. 76	0. 66–0. 86
Rostrum length	0. 76	0. 66–0. 83	0. 91	0. 86–1. 06
Rostrum length before antennal insertion	0. 30	0. 23–0. 33	0. 42	0. 36–0. 46
Funicular segment 2 length	0. 051		0. 057	0. 051–0. 068
Funicular segment 3 length	0. 034		0. 040	0. 034–0. 051

BIOLOGY: The only biological information available on this species is this host-plant record: "On *Encelia*," Whittier, Calif., Feb. 1, 12, and 22 (USNM).

DISCUSSION: This species resembles *S. albidosquamosus* Klima in respect to body shape and proportions and prothoracic punctation, but the two species may be readily distinguished by the differences given in the key. In addition, the median lobe of the male genitalia of *S. obtectus* has an internal crossbar behind the median orifice, and there is no such bar in the male genitalia of *S. albidosquamosus*.

DISTRIBUTION: *S. obtectus* has been recorded only from the Pacific mountain system in California, mainly in valley and coastal areas. A few specimens have been taken at higher elevations on the western slope of the Sierra Nevadas. The following specimens were examined:

CALIFORNIA: LOS ANGELES CO.: Inglewood, Feb. 22, March (CM); Los Angeles (USNM); Los Angeles (CM); Los Angeles, May 10 (AMNH); Mesmer City, Feb. 22 (CM); Redondo, March (CU); Redondo, April 2 (CM); Redondo, March, April (CAS); Redondo Beach, April 5 (CM); Whittier, Feb. 1, 12, 22 (USNM). MARIPOSA CO.: Glacier Point, 7,705 ft., May 12 (USNM); Mariposa Grove, 6,150 ft., May 14 (USNM). MONO CO.: Clark Station, 4,100 ft., May 9 (USNM). ORANGE CO.: Newport, April 10 (CAS); Newport, May 12 (USNM); Silverado Canyon, May 5 (CAS). RIVERSIDE CO.: Elsinore, April, May 3 (USNM);

Elsinore, April (CAS); Palm Springs, April, April 5 and 13 (CAS); Riverside (USNM); Riverside, May 13 (CM); San Jacinto Mountain, desert side, April 12 (CAS). SAN BERNARDINO CO.: Colton, May 26–28 (CAS). SAN DIEGO CO.: No data (CAS); Jacumba, April 17 (CAS); Poway (CAS); San Diego, May 10, June 8–14 (CAS); San Diego (USNM); San Diego, March (USNM). SANTA BARBARA CO.: Santa Maria, March 10 (CAS). VENTURA CO.: Moor Park, June 14 (USNM); Piru, May (CAS).

Total specimens examined: 215.

Smicronyx albidosquamosus Klima

FIGURES 83, 133

Smicronyx albosquamosus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 169–170, 1894 (preoccupied by *Smicronyx albosquamosus* Wollaston, 1854). Lectotype, here designated: Female, Arizona, collected by H. F. Wickham, MCZ 1919 (Dietz collection).

Smicronyx albidosquamosus Klima, *in* Schenkling, Coleopterorum catalogus . . ., vol. 28, part 140, p. 94, 1934 (replacement name for *Smicronyx albosquamosus* Dietz, 1894).

Smicronyx mackenziei Sleeper, Pan-Pacific Ent., vol. 31, No. 2, pp. 87–88, 1955. New synonymy. Holotype: Male, Borrego, California, April 6, 1940, collected by G. P. Mackenzie (E. L. Sleeper collection).

DESCRIPTION: Rostra of both sexes black, piceous at apex; slightly curved, shining before antennal insertions; subcarinate, with three uneven rows of deep punctures on each side of a smooth, impressed median line; coarsely punctate, covered with white, ovate scales behind antennal insertions. Head black, bearing a broad patch of scales in front. Antennae piceous, third funicular segment slightly shorter than second, club broadly ovate. Prothorax black, shining between the punctures, covered with ovate, white scales and yellowish brown, setiform scales, all of which are oriented toward midline; prosternum moderately emarginate, transversely impressed.

Elytra piceous, each interval bearing two rows of elliptic-ovate, white scales and a single row of yellowish brown, setiform scales. Scales of underside of thorax and abdomen similar to those of elytra, but the narrow scales white. Femora moderately clavate, reddish brown, covered with a mixture of elongate-ovate and narrow, white scales. Tibiae reddish brown, covered with scales similar to those on femora, apical spurs of foretibiae and midtibiae longer and stouter than those of hindtibiae. Tarsi piceous, third segment not broader than first two segments; fourth segment exceeding third by more than length of the latter; claws connate near their bases, moderately divergent. Median lobe of male genitalia as in group description (fig. 83). Stem of spiculum ventrale of female genitalia very slightly expanded at anterior end (fig. 133).

MEASUREMENTS: The following measurements were taken from 10 males and 10 females from Tucson, Ariz. (CU). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 48	2. 25–2. 60	2. 48	2. 25–2. 70
Elytra length	1. 69	1. 55–1. 80	1. 70	1. 50–1. 90
Elytra width at base	0. 88	0. 79–0. 92	0. 88	0. 76–1. 00
Prothorax length	0. 64	0. 59–0. 69	0. 66	0. 59–0. 76
Prothorax width	0. 67	0. 63–0. 69	0. 70	0. 73–0. 76
Rostrum length	0. 82	0. 79–0. 89	0. 93	0. 83–1. 00
Rostrum length before antennal insertion	0. 34	0. 30–0. 36	0. 42	0. 36–0. 46
Funicular segment 2 length	0. 058	0. 051–0. 068	0. 058	0. 051–0. 068
Funicular segment 3 length	0. 043	0. 034–0. 051	0. 041	0. 034–0. 051

BIOLOGY: A single host-plant record was taken from the material examined: "On *Encilia farinosa*" (correct spelling—*Encelia*), Catalina Springs, Ariz., April 8 and 14 (19 specimens, USNM).

DISCUSSION: The characters by which this species may be distinguished from *S. obtectus* have been given in the discussion of the latter species on page 300.

After examining two paratypes of *Smicronyx mackenziei* Sleeper, the writer has concluded that they are conspecific with *S. albidosquamosus* Klima. Both paratypes were from the type locality (Borrego, Calif.). Assuming that the paratypes are conspecific with the holotype, the writer has placed *Smicronyx mackenziei* Sleeper in synonymy with *Smicronyx albidosquamosus* Klima.

DISTRIBUTION: Present records indicate that *S. albidosquamosus* may be found in the basin and range portion of Arizona and in the Los Angeles range section and California coast portions of the Pacific mountain system. The following specimens were examined:

ARIZONA: COCONINO CO.: Bright Angel, May 10 (USNM). GILA CO.: Globe (CU). PIMA CO.: Catalina Springs, April 2–May 5 (USNM). Sabino Canyon, March 20–21 (CU), Santa Catalina Mountains, Apr. 8 (CAS), Santa Catalina Mountains, Apr. 8 (CU), Tucson, April 11 (USNM), Tucson, April 23 (CU). YAVAPAI CO.: Hot Springs, June 21 (USNM).

CALIFORNIA: LOS ANGELES CO.: Los Angeles (CU), no data (USNM). MARIN CO.: August (USNM). ORANGE CO.: Newport, April 10 (CAS). RIVERSIDE CO.: Palm Springs, April (USNM), Palm Springs, April 26 (CAS), Palm Springs, Dec. 22 (ELS), Elsinore, May 3 (USNM). SAN DIEGO CO.: April (USNM), San Diego, May 21 (USNM).

Total specimens examined: 235.

SMICRONYX IMBRICATUS GROUP

DESCRIPTION: Body elongate, only moderately stout. Rostra of both sexes moderately curved, slightly tapered from base to apex; squamose from base to near apex. Prothorax subcylindrical, but slightly narrowed near apex; punctures of disk rounded, not very

closely spaced. Sides of elytra subparallel; humeri prominent, declivities distinct. Male genitalia only moderately elongate, similar in shape to those of the *S. corniculatus* and *S. obtectus* groups (compare figs. 76, 82, 84). Setiform scales prominent on prothorax and elytra.

Discussion: Although *S. imbricatus* is similar to the *S. obtectus* and *S. corniculatus* groups in general body form and male genitalia, its subcylindrical prothorax and almost completely squamose rostrum make that species difficult to include in either of those groups. Therefore, *S. imbricatus* is treated here as a separate group.

Map 12 gives the distribution of this group.

Map 12.—Distribution of the specimens examined of *imbricatus* group of *Smicronyx*. ★, *S. imbricatus*.

***Smicronyx imbricatus* Casey**

Figures 84, 134

Smicronyx imbricatus Casey, Ann. New York Acad. Sci., vol. 6, pp. 391–392, 1892. Lectotype here designated: Male, Mojave, California, USNM 36703 (T. L. Casey collection).

Synertha hornii Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 173–174, pl. 8, figure 25, 1894. New synonymy. Type: male, "Ariz.," MCZ 1924 (Dietz collection).

Description: Rostra of both sexes black to piceous, rather slender, moderately curved; squamose, closely but not coarsely punctate from base to near apex in male and female. Head black, entire surface thinly squamose. Antennae piceous, their scales pale brown. Prothorax black, sides subparallel from base to point of convergence toward apex; evenly covered with deep rounded punctures; scales ovate, white at sides and along midline, medium to light yellowish brown elsewhere; prosternum deeply emarginate, not concave.

Elytra black, intervals covered with imbricate, elliptical scales, mostly white in humeral regions, light or medium brown with a scattering of white posterior to humeral regions. Underside of thorax and abdomen black, covered with ovate, white scales having a violet to bluish iridescence. Femora reddish, slightly clavate, covered with elongate and ovate, pale brown to white scales. Tibiae black, covered with scales similar to those of femora. Tarsi piceous; third segment distinctly broader than first two; fourth segment extending well beyond third; claws connate near their bases, distinctly divergent. Median lobe of male genitalia slightly broadened near apex; internal sac exceeding median lobe, covered with fine spines (fig. 84). Arms of spiculum ventrale of female genitalia slightly elbowed; anterior end of stem not expanded (fig. 134).

MEASUREMENTS: The following measurements were taken from 5 males and 5 females from Williams, Ariz. (USNM) and 5 males and 5 females from Inyo Mountains, Calif. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 19	1. 98–2. 40	2. 17	1. 72–2. 66
Elytra length	1. 60	1. 45–1. 79	1. 56	1. 25–1. 82
Elytra width at base	0. 86	0. 73–0. 92	0. 83	0. 69–1. 00
Prothorax length	0. 53	0. 46–0. 56	0. 56	0. 46–0. 59
Prothorax width	0. 56	0. 49–0. 63	0. 57	0. 43–0. 66
Rostrum length	0. 82	0. 76–0. 89	0. 89	0. 76–1. 09
Rostrum length before antennal insertion.	0. 27	0. 20–0. 33	0. 39	0. 33–0. 46
Funicular segment 2 length	0. 054	0. 051–0. 068	0. 058	0. 051–0. 068
Funicular segment 3 length	0. 037	0. 034–0. 051	0. 039	0. 034–0. 051

BIOLOGY: The host-plant records which follow were taken from the material examined: "*Gutierrezia lucida*," Logan, Utah, June 15 (USNM); "*Pluchea sericea*," Leeds, Utah, May 20 (USNM); "*Chrysothamnus speciosus*," Leeds, Utah, June 15 (USNM); "*Aplopappus*" (now *Haplopappus*), Mesa, Arizona, Feb. 24 (USNM); "on *Prosopus juliflora*," Death Valley, Calif., April, Panamint Valley, Calif., April (USNM); "*Covillea tridentata*," Glendale, Nev., June 7 (USNM); "on *Prunus* blossoms," Oak Creek, near Flagstaff, Ariz., May 16 (USNM); "*Pinus edulus*," Rhincon Mountains, Ariz. (USNM); "coll. on *Pinus monophyllum*," Argus Mountains, Calif., May (USNM).

DISTRIBUTION: Present records indicate that *S. imbricatus* is widely distributed in the basin and range province, and has been recorded from the Gulf coastal plain and central lowlands in Texas, and the Sierra Nevada and coast range sections of the Pacific mountain system. The following specimens were examined:

ARIZONA: COCHISE CO.: Chiricahua Mountains, July (CU); Huachuca Mountains, (AMNH). COCONINO CO.: Bright Angel, May 10–July 12 (USNM); Grand

Canyon, June 14–16 (CU); Oak Creek near Flagstaff, May 16 (USNM); Williams, May 29–July 1 (USNM). GILA CO.: Gila Bend, March 6 (CU); Pinal Creek, at Globe, June 7 (CU); Pinal Mountains, June 6 (CAS); San Carlos Lake, April 5 (USNM). MARICOPA CO.: Mesa, Feb. 24 (USNM); Phoenix; March 27 and April 23 (CNHM); Tempe (USNM). PIMA CO.: Catalina Springs, April 15–May 6 (USNM); Tucson, April 29 (USNM); Tucson, Aug. 10 (CAS); Tucson (AMNH). SANTA CRUZ CO.: Madera Canyon, Santa Rita Mountains, April 21 (CU), Santa Rita Mountains, May 24–June 13 (USNM). YAVAPAI CO.: Bumble Bee, May 20 (CAS); Hot Springs, June 22 (USNM); Indian Creek 6 miles southwest of Prescott, May 3 (USNM), Prescott, June 19 (USNM). YUMA CO.: Dateland, March 6 (CU); Fort Yuma, April 4 (USNM); Yuma, June 29 (USNM).

CALIFORNIA: IMPERIAL CO.: Calexico, Dec. 21 (USNM); Holtville, Dec. 22 (USNM); near Picacho, Feb. 23–26 (USNM). INYO CO.: Argus Mountains, May (USNM); Death Valley, April (USNM); Inyo Mountains, July 7–11 (USNM); Panamint Valley, April (USNM), April 14 (CNHM). KERN CO.: Inyokern, June 13 (CAS); Mojave (USNM). LOS ANGELES CO.: May (CM), May (USNM); Lancaster, Dec. 5 (CAS); Palmdale, June (USNM); Pasadena, April (CAS). MARIPOSA CO.: Bear Lake, June 15 (CAS). MONO CO.: Mono Lake, June 13 (CAS). NAPA CO.: May 17 (USNM). RIVERSIDE CO.: Banning, April 13 (USNM); Borrego, March 25 (CU); Palm Canyon, April 15 (CAS); Palm Springs, March 11 and 25, April, May (CM); Palm Springs, March 25 (CNHM); Palm Springs, March 11 and May 13 (CAS); Palm Springs, Feb. 7–March 11, May 2–4 (USNM). SAN BERNARDINO CO.: No data (CAS); July (USNM); San Bernardino Mountains, Sept. 7 and 14 (CAS); San Bernardino Mountains, Sept. 14 (CNC); Victorville, April 30 (CU). SAN DIEGO CO.: No data (USNM). "Cal." (AMNH).

NEVADA: CLARK CO.: Glendale, June 7 (USNM); Overton, April 21 (USNM).

NEW MEXICO: OTERO CO.: Cloudcroft (USNM).

TEXAS: DUVAL CO.: San Diego, May 16 and 24 (USNM). UVALDE CO.: Sabinal, June 2 (USNM).

UTAH: CACHE CO.: Logan, June 15 (USNM). SALT LAKE CO.: Salt Lake City, April 10 (USNM). WASHINGTON CO.: Leeds, May 20 and June 15 (USNM); St. George (AMNH).

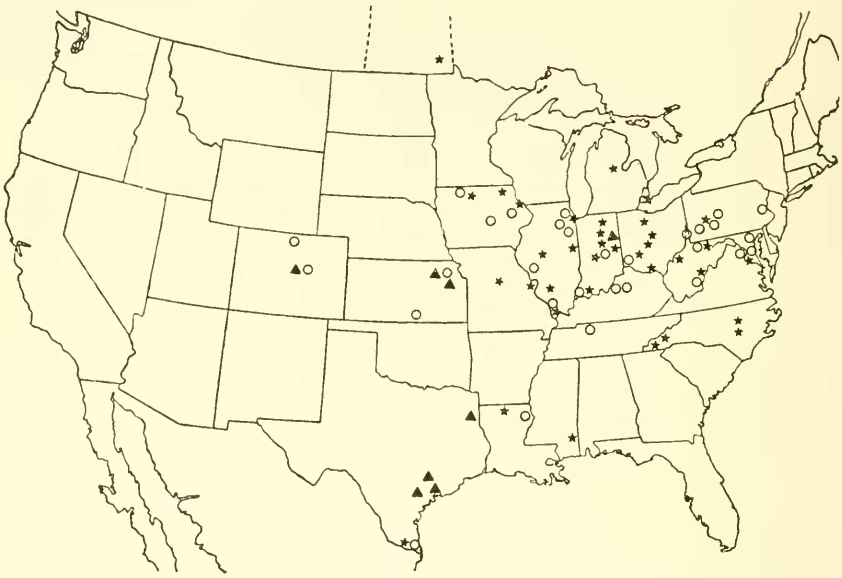
Total specimens examined: 359.

SMICRONYX OVIPENNIS GROUP

DESCRIPTION: Rostra of both sexes moderately curved, stout; smoother and more shining in the female (fig. 27). Prothorax strongly rounded on the sides, strongly convex dorsally, narrowed and slightly constricted at the apex; disk deeply and closely punctured with subangular punctures (fig. 26). Elytra slightly inflated near the middle, humeri distinct, declivities indistinct (fig. 26). Median lobe of male genitalia rather elongate, the sides subparallel (figs. 85–87).

DISCUSSION: The species of this group are similar to the *S. abnormis*, *S. griseus*, and *S. resplendens* groups in respect to genitalia, but may be distinguished from those groups by the shape of the prothoraxes, which are quite convex in the *S. ovipennis* group, but not in the other three groups, and by the shape of the elytra, which are inflated only in the *S. ovipennis* group.

Map 13 gives the distribution of this group.



MAP 13.—Distribution of the specimens examined of the *ovipennis* group of *Smicronyx*. ▲, *S. ovipennis*; ○, *S. squalidus*; ★, *S. tesselatus*.

Key to the Species of the *Smicronyx ovipennis* group [8]

1. Scales of elytra mostly white, a few brown scales in narrow, irregular, broken transverse bands, tibiae piceous . . . . . **S. ovipennis** LeConte (p. 306)
   Scales of elytra mostly brown, a few broken, narrow bands of white scales present, tibiae more reddish 2
2. Body length rarely less than 2.5 mm.; rostra of females almost ecarinate, smooth, before antennal insertions, slightly expanded at apex.
   S. squalidus Casey (p. 310)
   Body length rarely as much as 2.5 mm.; rostra of females subcarinate and punctate before antennal insertions, not expanded at apex.
   S. tesselatus Dietz (p. 308)

Smicronyx ovipennis LeConte

FIGURES 26, 27, 85

Smicronyx ovipennis LeConte, Proc. Amer. Philos. Soc., vol. 15, pp. 170, 171, 1876. Lectotype, here designated: Male, Kansas, MCZ 1896 (J. L. LeConte collection).

Smicronyx setulosus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 132, 1894. New synonymy. Lectotype, here designated: Female, "Tex.," MCZ 1893 (Dietz collection).

DESCRIPTION: Rostra of both sexes black, stout, moderately curved; distinctly carinate medially, feebly carinate laterally, deeply punctate, thinly squamose behind antennal insertions; finely punctate and shining before antennal insertions in female; deeply punctate, subcarinate, not shining before antennal insertions in male. Head black,

[8] This key should be used only in conjunction with the descriptions of these species.

finely alutaceous; thinly squamose above base of rostrum. Antennae piceous, their scales white, second funicular segment much longer than third. Prothorax black, scales broadly ovate and white at sides and in a short basal vitta, otherwise elliptical to elongate and light brown.

Elytra black, rather inflated near middle; intervals covered with broad, subquadrate to suborbicular scales, mostly white, arranged in irregular transverse fasciae, with a few light brown scales between fasciae. Underside of thorax and abdomen black, covered with suborbicular, white scales. Femora piceous, moderately clavate, covered with elongate-ovate white scales. Tibiae piceous, thinly covered with elongate white scales. Tarsi piceous, first three segments short and broad; fourth segment extending only slightly beyond third; claws connate for slightly less than half their length, slightly divergent. Median lobe of male genitalia elongate, subparallel at sides, internal sac distinctly spiculate near apical end (fig. 85).

Measurements: The following measurements were taken from 7 males and 3 females from Goliad Co., Texas (USNM), 1 male and 2 females from Victoria, Texas (USNM), 1 female from Topeka, Kans. (USNM), and 1 female from Riley Co., Kans. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 16	1. 80–2. 60	2. 35	2. 05–2. 60
Elytra length	1. 51	1. 30–1. 60	1. 51	1. 40–1. 80
Elytra width at base	0. 82	0. 79–0. 92	0. 91	0. 83–1. 03
Prothorax length	0. 56	0. 49–0. 66	0. 57	0. 49–0. 66
Prothorax width	0. 66	0. 56–0. 79	0. 68	0. 59–0. 76
Rostrum length	0. 91	0. 79–1. 03	1. 01	0. 83–1. 15
Rostrum length before antennal insertion	0. 34	0. 33–0. 36	0. 44	0. 43–0. 49
Funicular segment 2 length	0. 074	0. 068–0. 085	0. 073	0. 068–0. 085
Funicular segment 3 length	0. 047	0. 034–0. 051	0. 044	0. 034–0. 051

Biology: A single host-plant record was taken from the material examined: "Red Clover," Decatur, Ind. (2 specimens, USNM).

Discussion: A direct comparison of the type specimens of *S. ovipennis* LeConte and *S. setulosus* Dietz revealed no differences that could not be attributed to individual or regional variation. The two names are therefore considered by the writer to be synonyms.

Distribution: Records from the material examined indicate that the range of *S. ovipennis* extends from the central lowlands westward across the Great Plains and to the southern Rocky Mountains. The following specimens were examined:

Colorado: denver co.: Denver, July (USNM).
Indiana: adams co.: Decatur (USNM).
Kansas: riley co.: No data (USNM). shawnee co.: Topeka (USNM), Topeka, July (USNM).
Missouri: "Mo." (USNM).

TEXAS: COLORADO CO.: Columbus, Aug. 20–21 (USNM). GOLIAD CO.: Sept. 8 (USNM). HARRISON CO.: Marshall, June 7 (USNM). VICTORIA CO.: Victoria, June 12, Sept. 16 (USNM). "Tex." (AMNH).

Total specimens examined: 28.

Smicronyx tesselatus Dietz

FIGURE 86

Smicronyx tesselatus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 134, 1894. Lectotype, here designated: Male, District of Columbia, MCZ 1895 (Dietz collection).

Smicronyx impressirostris Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 135, pl. 8, figure 10, 1894. New synonymy. Lectotype, here designated: Male, Southern Illinois, MCZ 1897 (Dietz collection).

DESCRIPTION: Rostra of both sexes piceous, moderately curved, sparsely punctate from base to apex; surface dull, granular behind antennal insertions; two fine dorsomedial carinae present toward apex in male, feebly indicated behind antennal insertions in female; more tapered and shining before antennal insertions in female than in male. Head black to piceous, thinly squamose in front. Antennae piceous, their scales pale brown. Prothorax black to piceous; shape and punctures as in group description; scales ovate to elliptical, light brown with a scattering of white; prosternum shallowly emarginate, moderately concave, antecoxal ridges feebly indicated.

Elytra black to piceous; moderately inflated, intervals covered with ovate scales, which are light brown with a few narrow, broken, transverse bands of white scales. Underside of thorax and abdomen black, closely covered with broadly ovate, white scales. Femora piceous, covered with ovate and linear, pale brown scales. Tibiae piceous, thinly covered with linear, pale brown scales. Tarsi black; first three segments short and broad; fourth segment extending well beyond third; claws connate near their bases, slightly divergent. Median lobe of male genitalia bluntly V-shaped at apex; internal sac not exceeding median lobe, orificial plates not fused (fig. 86).

MEASUREMENTS: The following measurements were taken from 7 males and 5 females from Lake Okoboji, Iowa (USNM) and 3 males and 3 females from Havana, Ill. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 20	2. 00–2. 40	2. 28	2. 10–2. 50
Elytra length	1. 51	1. 40–1. 70	1. 03	1. 40–1. 60
Elytra width at base	0. 83	0. 73–0. 92	0. 89	0. 83–1. 06
Prothorax length	0. 58	0. 49–0. 63	0. 58	0. 53–0. 66
Prothorax width	0. 67	0. 59–0. 73	0. 69	0. 59–0. 73
Rostrum length	0. 92	0. 83–1. 00	1. 00	0. 89–1. 06
Rostrum length before antennal insertion	0. 32	0. 30–0. 36	0. 43	0. 40–0. 49
Funicular segment 2 length	0. 070	0. 068–0. 085	0. 079	0. 068–0. 085
Funicular segment 3 length	0. 044	0. 034–0. 051	0. 047	0. 034–0. 051

BIOLOGY: A single host-plant record was taken from the material examined: "Sweeping *Ambrosia*," 7 miles north of McAllen, Texas, Sept. 20 (B. D. Valentine).

DISCUSSION: The lectotype of *S. impressirostris* Dietz is evidently a specimen of *S. tesselatus* Dietz, but it has a more accentuated prebasal impression than do most specimens of the latter species. The rostrum is slightly impressed before the base in all specimens of *S. tesselatus*, and it seems probable that the impression could be more marked in some specimens. The figure of the rostrum of *S. impressirostris* given by Dietz (1894) evidently exaggerates the impression, if it was taken from the two specimens he mentioned in his description of that species.

DISTRIBUTION: Present records indicate that *S. tesselatus* is widely distributed in the central lowlands and Appalachian highlands, and may be found on the Atlantic coastal plain in Maryland and Virginia. The following specimens were examined:

ARKANSAS: "South West Ark." (AMNH).

ILLINOIS: COOK CO.: Palos park (CNHM); Palos Park, May 30 (CNHM); Willow Springs, June 1 (CNHM). JACKSON CO.: Murphysboro, Aug. 9 (CNHM). MASON CO.: Havana, July 1, Aug. 12 and 15 (USNM). VERMILION CO.: Muncie, Aug. 31 (USNM). WASHINGTON CO.: Nashville, March 15, Aug. 8 (USNM).

INDIANA: HOWARD CO.: Nov. 19 (ELS). KOSKIUSCO CO.: July 14 (CNHM). MARION CO.: June 4, July 1 (CU). MIAMI CO.: Nov. 19 (ELS). RANDOLPH CO.: Nov. 18 (ELS). WABASH CO.: Nov. 19 (ELS).

IOWA: DICKINSON CO.: Lake Okoboji, June 23, July 1–26 (USNM). DUBUQUE CO.: Aug. 4 (USNM). WINNESHIEK CO.: July 18 (USNM).

KENTUCKY: "Ky." (CNHM).

LOUISIANA: LINCOLN PARISH: Ruston, June 9 (USNM).

MANITOBA: Woodbridge, May 15 (USNM).

MARYLAND: MONTGOMERY CO.: Glen Echo, "Summer," June 24, Aug. 1–6 (USNM). PRINCE GEORGES CO.: Beltsville, July 24 (USNM).

MICHIGAN: MIDLAND CO.: June 23 (CAS).

MISSISSIPPI: GEORGE CO.: July 19 (CU).

MISSOURI: BOONE CO.: Columbia, March 17 (ELS). ST.LOUIS CO.: St. Louis, (CNC); St. Louis, Aug. 5 (CAS).

NORTH CAROLINA: BUNCOMBE CO.: Black Mountains, June 14–23, July (AMNH); Valley of the Black Mountains, June 20–30, Aug. 16 and 17 (AMNH). HARNETT CO.: Sprout Springs, Aug. 8 (ELS). TRANSYLVANIA CO.: Lake Toxaway (AMNH). WAKE CO.: Aug. 9 (ELS).

OHIO: DELAWARE CO.: March 31 (ELS). FRANKLIN CO.: Westerville, May 4, June 19–22, July 3–22 (ELS). GREENE CO.: May 26 (ELS). HAMILTON CO.: Cincinnati, Aug. 4 and 11 (USNM). SCIOTO CO.: Sept. 2 (ELS). WOOD CO.: Bowling Green, Sept. (ELS).

ONTARIO: ESSEX CO.: Leamington, June 2–4, Pelee Island, June 27 and 28, Aug. 3, Point Pelee, June 4–11, July 8 (CNC).

PENNSYLVANIA: ALLEGHENY CO.: Pittsburgh, June 10, July 30 (CM). WESTMORELAND CO.: Jeanette, May 30, June 10–26 (CM).

TEXAS: HIDALGO CO.: 7 miles north of McAllen, Sept. 20 (B. D. Valentine).

VIRGINIA: FAIRFAX CO.: Vienna, Aug. 21 (USNM).

WEST VIRGINIA: GREENBRIER CO.: White Sulphur Springs, July (CAS). MONONGAHELA CO.: Morgantown, Aug. (CAS). WOOD CO.: Kanawha Station, July 20 (USNM).

Total specimens examined: 168.

Smicronyx squalidus Casey

FIGURES 87, 102

Smicronyx squalidus Casey, Ann. New York Acad. Sci., vol. 6, pp. 407, 408, 1892. Lectotype, here designated: Female, Indiana, USNM 36717 (T.L. Casey collection).

Smicronyx cinerascens Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 132, 133, 1894. New synonymy. Type: Female, Texas, Academy of Natural Sciences of Philadelphia 2909 (Horn collection).

Smicronyx morio Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 133, 1894. New synonymy. Lectotype, here designated: Female, Pennsylvania, MCZ 1894 (Dietz collection).

DESCRIPTION: Rostra of both sexes piceous, moderately curved; thinly squamose behind antennal insertions; two dorsolateral carinae present from base to near apex in male, feeble, except above antennal insertions in female; more finely punctate, tapered, and smooth before antennal insertions in female than in male. Head piceous to reddish brown, thinly covered with narrow scales above base of rostrum. Antennae piceous, club rufopiceous, second funicular segment much longer than third. Prothorax black to piceous, shape and punctation as in group description; scales medium or pale yellowish brown (some nearly white), light scales in patches at sides or in a short median basal vitta.

Elytra black to piceous; each interval covered with three to four rows of small, subquadrate scales, some white and in irregular broken transverse bands, the rest medium brown. Underside of thorax and abdomen black, covered with small, suborbicular, grayish white scales. Femora moderately clavate, black at bases, otherwise rufopiceous, thinly covered with elongate and elongate-ovate yellowish white scales. Tibiae rufopiceous, thinly covered with linear white scales. Tarsi rufopiceous; first three segments short and broad; fourth segment extending only a little beyond the third, claws connate near their bases, slightly divergent. Median lobe of male genitalia as in group description, apex bluntly V-shaped, orificial plates fused dorsally (fig. 87). Arms of spiculum ventrale of female genitalia forming a V (figure 102).

MEASUREMENTS: The following measurements were taken from 5 males and 2 females from Marion Co., Ind. (CU), 3 males and 6 females from Easton, Pa. (CAS), and 2 males and 2 females from Cincinnati, Ohio (USNM). All measurements are in millimeters:

	Males		Females	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 69	2. 60–2. 80	2. 85	2. 80–3. 00
Elytra length	1. 87	1. 80–2. 00	1. 96	1. 90–2. 00
Elytra width at base	1. 04	1. 00–1. 09	1. 07	1. 03–1. 15
Prothorax length	0. 69	0. 66–0. 73	0. 75	0. 69–0. 79
Prothorax width	0. 86	0. 83–0. 92	0. 88	0. 83–0. 92
Rostrum length	1. 11	0. 89–1. 19	1. 31	1. 22–1. 42
Rostrum length before antennal insertion	0. 41	0. 36–0. 46	0. 58	0. 49–0. 63
Funicular segment 2 length	0. 107	0. 102–0. 119	0. 114	0. 102–0. 136
Funicular segment 3 length	0. 056	0. 051–0. 068	0. 058	0. 051–0. 068

BIOLOGY: A single host-plant record was taken from the material examined: "Reared from fruit and flower of giant ragweed," Kinderhook, Illinois, Aug. 10 (5 specimens, USNM).

DISCUSSION: This species is rather similar to *S. tesselatus* Dietz in general body shape and size, color of scales, and punctation of the prothorax. However, *S. squalidus* is usually distinctly larger than *S. tesselatus,* and has a rostrum which is longer, smoother, and more polished before the antennal insertions in the female than in the female of *S. tesselatus.*

The type specimens of the species listed in synonymy under *S. squalidus* Casey are so similar to the type of the latter that it is difficult not to consider them all conspecific.

DISTRIBUTION: Records taken from the material examined indicate that the range of *S. squalidus* extends from the Atlantic coastal plain across the Appalachian highlands, the central lowlands and the Great Plains to the southern Rocky Mountains. The following specimens were examined:

COLORADO: DENVER CO.: Denver, June (USNM). LARIMER CO.: Poudre River (Cache la Poudre), May (USNM).

ILLINOIS: COOK CO.: No data (CNHM); Chicago, June 18 (CNHM); Evanston, June 20 (CNHM); Willow Springs, June 14, July 31 (CNHM). JACKSON CO.: Gorham, Aug. 8 (CNHM); Murphysboro, Aug. 9 (CNHM). KANKAKEE CO.: Along river 4 miles above Kankakee. June 23 (CNHM). PIKE CO.: Kinderhook, Aug. 10 (USNM). WILL CO.: Joliet, June 6 (CNHM).

INDIANA: MARION CO.: June 4 (CU). POSEY CO.: Mount Vernon, Aug. 9 (CNHM).

IOWA: DICKINSON CO.: Lake Okoboji, July 17–22 (USNM). JONES CO.: June 16 (USNM). POWESHIEK CO.: July 30 (USNM).

KANSAS: DOUGLAS CO.: Lawrence, Aug. (USNM). KINGMAN CO.: Rago (USNM).

KENTUCKY: FRANKLIN CO.: Frankfort, June 6, July 20 (USNM). JEFFERSON CO.: Louisville, June 3 (USNM). "KY." (CNHM).

LOUISIANA: MADISON PARISH: Tallulah, June 10 (USNM).

MARYLAND: BALTIMORE CO.: Baltimore, July 24 (CAS). MONTGOMERY CO.: Glen Echo, Aug. 3 (USNM). PRINCE GEORGES CO.: Beltsville, July 24 (USNM).

OHIO: HAMILTON CO.: June 25, Aug. 4 (USNM); Cincinnati (USNM). "Ohio" (USNM).

PENNSYLVANIA: ALLEGHENY CO.: July 2 (CU); Pittsburgh, May 26, June 1 and 30, July 1–30 (CM). INDIANA CO.: Indiana, June (AMNH). NORTHAMPTON CO.: Easton, Aug. 7 and 15 (CAS). WESTMORELAND CO.: Jeanette (CAS); Jeanette (CM); Jeanette June, July 1–20 (CM); Jeanette (CAS). "W-Pa." (CAS).

TENNESSEE: MONTGOMERY CO.: March 11 (USNM).

TEXAS: CAMERON CO.: No data (USNM); June, July 6 (USNM). "Tex." (AMNH).

VIRGINIA: FAIRFAX CO.: July 13 (USNM).

WEST VIRGINIA: BROOKE CO.: Bethany, Aug. 13 (USNM). GREENBRIER CO.: White Sulphur Springs, July (CAS); White Sulphur Springs, July 3 (USNM). MONONGAHELA CO.: Morgantown, Aug. (CAS).

Total specimens examined: 153.

SMICRONYX ABNORMIS GROUP

DESCRIPTION: Body elongate ovate, moderately stout. Prothorax subparallel at sides until narrowed before apex; disk closely but not deeply punctate, covered with broadly ovate and elongate pointed scales. Rostra of both sexes fairly stout; coarsely punctured and squamose behind antennal insertions, smoother and more shining before antennal insertions; more strongly tapered before antennal insertions in female than in male. Elytra moderately convex, humeri prominent, declivities barely distinguishable; intervals covered with two to three rows of broad, subtruncate scales. Median lobe of male genitalia very elongate, much longer than internal sac (fig. 88). Arms of spiculum ventrale of female genitalia joined to form a V (fig. 136).

DISCUSSION: *S. abnormis* resembles the species of the *S. ovipennis* group in having a fairly stout body form, stout rostrum, and elongate male genitalia. However, the prothorax is not very convex, and the elytra are not inflated in *S. abnormis*, as they are in the species of the *S. ovipennis* group. Because *S. abnormis* does not share all or most of the general features of the *S. ovipennis* group or of any other group of species in the subgenus *Pseudosmicronyx*, it is treated here as a separate group.

Map 14 gives the distribution for this group.

MAP 14.—Distribution of the specimens examined of the *abnormis* group of *Smicronyx*. ●, *S. abnormis*.

Smicronyx abnormis Dietz

FIGURES 88, 136

Smicronyx abnormis Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 166, 1894. Type: Male, New Mexico, MCZ 1915 (Dietz collection).

Smicronyx parcus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 169, 1894. New synonymy. Type: Male, Nevada, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes black to piceous, moderately curved, divided dorsally by a smooth median line which is depressed as a sulcus above the antennal insertions. Head piceous, finely alutaceous, the front covered by a patch of golden brown scales. Prothorax black, punctures so arranged that the interspaces form rather wavy rugae running anterolaterally from the midline; scales mostly golden brown (very light brown in some specimens) except for a cluster of white scales at base on the midline and a larger cluster of white scales on each side; prosternum transversely impressed.

Elytra piceous, scales similar in shape and color to those of the prothorax, the white scales usually condensed into short or interrupted vittae, giving a striped appearance to most (but not all) specimens. Scales of the venter of the thorax and abdomen white, except for a few scattered light brown scales. Femora moderately clavate, covered with white and light brown scales similar in shape to those of the elytra. Tibiae piceous, covered with scales similar to those of the femora; gradually expanded from base to apex. Tarsi piceous, covered with a mixture of white and light brown scales; third segment distinctly wider than second, fourth segment not projecting very

far beyond third; claws connate near base, slightly divergent. Internal sac of male genitalia covered with fine spines; spiculum gastrale slightly sinuate, curved but not hooked at anterior end (fig. 88).

MEASUREMENTS: The following measurements were taken from 10 males and 10 females from Nogales, Ariz. (CNHM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 46	2. 20–2. 60	2. 60	2. 20–2. 70
Elytra length	1. 78	1. 60–1. 90	1. 88	1. 50–2. 00
Elytra width at base	0. 99	0. 89–1. 03	1. 04	0. 92–1. 06
Prothorax length	0. 59	0. 56–0. 63	0. 62	0. 53–0. 63
Prothorax width	0. 65	0. 59–0. 69	0. 67	0. 59–0. 73
Rostrum length	0. 98	0. 89–1. 00	1. 07	0. 92–1. 10
Rostrum length before antennal insertion.	0. 35	0. 33–0. 40	0. 45	0. 40–0. 46
Funicular segment 2 length	0. 068		0. 071	0. 068–0. 085
Funicular segment 3 length	0. 051		0. 053	0. 051–0. 068

BIOLOGY: A single host-plant record was taken from the material examined: "On *Helenium tenuifolium*," 4 miles west of Dayton, Nevada, July 8 and 9 (B. D. Valentine).

DISTRIBUTION: Records from the material examined indicate that *S. abnormis* may be found in the southern Rocky Mountains, southern portion of the basin and range province, and the Sierra Nevada and Los Angeles range portions of the Pacific mountain system. The following specimens were examined:

ARIZONA: SANTA CRUZ CO.: Nogales, Aug. 14, 24, 27, 30, Sept. 1, 3 (CNHM). YAVAPAI CO.: Prescott, July 15 (USNM).

CALIFORNIA: LOS ANGELES CO.: Los Angeles, Apr. 28 (USNM); Palmdale, June (USNM); Pasadena, July (CAS), Sierra Madre, Aug. (CAS). RIVERSIDE CO.: Palm Springs, March 12 (CNHM). SAN DIEGO CO.: Warners, July 17 (CAS).

COLORADO: EL PASO CO.: Colorado Springs, 6,000–7,000 ft., June 15–30 (USNM).

NEVADA: LYON CO.: 4 miles west of Dayton, July 8 and 9 (B. D. Valentine).

UTAH: SALT LAKE CO.: Draper, Aug. 23, 25 (B. D. Valentine).

Total specimens examined: 71.

SMICRONYX GRISEUS GROUP

DESCRIPTION: Body elongate ovate, moderately stout. Rostra distinctly curved in both sexes, smoother and more polished before antennae in female. Second joint of antennal funicle slightly longer than third and shorter than first segment. Prothorax broadly rounded at sides and narrowed toward apex; disk covered with closely spaced rounded punctures. Elytra slightly wider behind middle than at base, humeri prominent, declivities barely distinct. Median lobe of male genitalia elongate, parallel at sides as in the *S. ovipennis* and *S. resplendens* groups (compare figs. 85, 89, 91).

Discussion: The species of this group resemble the species of the *S. corniculatus* group (figs. 6, 7) in shape of prothorax, elytra, and rostra, but the male genitalia of the species of the *S. griseus* group are elongate, as in the *S. ovipennis* and *S. abnormis* groups (compare figs. 85, 88, 89). The silvery gray scales on the prothorax and elytra are an additional distinctive feature of the two species in the *S. griseus* group.

Map 15 gives the distribution of this group.

Map 15.—Distribution of the specimens examined of the *griseus* group of *Smicronyx*. ⊙, *S. griseus*; ▲, *S. pleuralis*.

Key to the Species of the *Smicronyx griseus* Group

1. Outermost claws of midtarsi and hindtarsi distinctly shorter than inner claws; prothorax suddenly narrowed near the apex.
S. pleuralis Dietz (p. 317)

Tarsal claws equal in length; prothorax gradually narrowed toward the apex.
S. griseus LeConte (p. 315)

Smicronyx griseus LeConte

Figures 89, 135

Smicronyx griseus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 171, 1876. Lectotype, here designated: Female, "Southern States" (specimen bears an orange disc), MCZ 1921 (J. L. LeConte collection).

Smicronyx picipes Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 140, 1894. New synonymy. Lectotype, here designated: Male, Virginia; CM (Ulke collection).

Description: Rostra of both sexes black, slightly curved; rugulosely punctate, carinate medially and thinly squamose behind

antennal insertions; deeply punctate, slightly rugulose and subcarinate before antennal insertions in male; deeply but not closely punctate, smooth and shining before antennal insertions in female. Head black, finely alutaceous; thinly squamose. Antennae black, their scales pale brown, second funicular joint not much longer than third. Prothorax black, broadly rounded at sides, narrowed but not constricted toward apex; punctures subconfluent, interspaces forming low rugae on disk; scales ovate or linear, gray at sides, but light brown on disk.

Elytra black; intervals each bearing, in addition to usual row of setiform scales, two rows of broadly ovate scales, silvery gray at sides of elytra and brownish toward median suture. Underside of thorax and abdomen black, covered with broadly ovate, pale gray scales. Femora moderately clavate, rufopiceous, thinly covered with elliptical and elongate pale gray scales. Tibiae rufopiceous, thinly covered with elongate, brownish gray scales. Tarsi piceous, third segment much broader than first two; fourth segment extending only slightly beyond third; claws connate near their bases, slightly divergent. Median lobe of male genitalia slightly broadened at apex; internal sac not exceeding median lobe in length, covered with fine spines (fig. 89). Stem of spiculum ventrale of female genitalia expanded at anterior end (fig. 135).

MEASUREMENTS: The following measurements were taken from 1 male from Lucas Co., Ohio (USNM), 1 male and 1 female from Glen Echo, Md. (USNM), 3 males and 2 females from Lucedale, Miss. (CU), 1 male from Norfolk, Va. (USNM), 1 male from Lake Toxaway, N.C. (AMNH), and 1 female from Wall, Pa. (CM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 41	1. 80–2. 80	2. 32	2. 00–2. 60
Elytra length	1. 68	1. 30–1. 90	1. 52	1. 30–1. 80
Elytra width at base	0. 89	0. 63–1. 09	0. 90	0. 73–1. 06
Prothorax length	0. 62	0. 46–0. 73	0. 64	0. 56–0. 69
Prothorax width	0. 68	0. 49–0. 76	0. 67	0. 59–0. 73
Rostrum length	0. 88	0. 66–1. 00	0. 95	0. 89–1. 00
Rostrum length before antennal insertion	0. 33	0. 26–0. 40	0. 48	0. 46–0. 49
Funicular segment 2 length	0. 056	0. 051–0. 068	0. 055	0. 051–0. 068
Funicular segment 3 length	0. 039	0. 034–0. 051	0. 038	0. 034–0. 051

BIOLOGY: Hamilton (1886) reported that he had collected *S. griseus* on *Ambrosia artemisiifolia* during August and September. From his description of the specimens, it seems probable that he did have *S. griseus* LeConte. The locality where the observations were made was not given, but Hamilton could have made them near his home at Allegheny, Pa.

A single host-plant record was taken from the material examined: "On *Coreopsis tripteris* L.," Shawnee State Forest, Ohio, Sept. 2 (ELS).

DISCUSSION: A comparison of the lectotype specimens of *S. griseus* LeConte and *S. picipes* Dietz did not reveal any differences that could not be attributed to individual variation. In the lectotype of *S. picipes* Dietz, the brown scales of the elytra are arranged in a more diffuse median stripe than in the lectotype of *S. griseus*. However, some specimens of *S. griseus* have been seen to have a less well-defined sutural stripe than others, and it does not seem unlikely that the stripe could be rather diffuse and poorly defined in some specimens.

S. griseus is similar to *S. pleuralis* Dietz in body shape, color pattern, and genitalia, but the unequal claws, and suddenly narrowed prothorax of *S. pleuralis* will serve to distinguish the two species. In addition, when the two species are actually compared, it can be seen that the brown sutural stripe on the elytra is broader and the rostrum of the male more strongly curved in *S. pleuralis* than in *S. griseus*.

DISTRIBUTION: *S. griseus* has been recorded from the Atlantic coastal plain in Maryland and Virginia, the Appalachian highlands, the eastern portion of the central lowlands, and the Gulf coastal plain in Mississippi. The following specimens were examined:

OHIO: LUCAS CO.: Adams Township, July 15 (USNM). SCIOTO CO.: Shawnee State Forest, Sept. 2 (ELS).

PENNSYLVANIA: ALLEGHENY CO.: Wall, July (CM).

MARYLAND: MONTGOMERY CO.: Glen Echo, Summer (USNM).

MISSISSIPPI: GEORGE CO.: Lucedale, June 3, 8, 20, 22 (CU).

NORTH CAROLINA: BUNCOMBE CO.: Valley of the Black Mountains, July 5–7 (AMNH). TRANSYLVANIA CO.: Lake Toxaway (AMNH).

VIRGINIA: NORFOLK CO.: June (CM).

Total specimens examined: 27.

Smicronyx pleuralis Casey

FIGURE 90

Smicronyx pleuralis Casey, Ann. New York Acad. Sci., vol. 6, p. 395, 1892. Type: Female, Arizona, USNM 36699 (T. L. Casey collection).

DESCRIPTION: Rostra of both sexes black to piceous; moderately curved in male, slightly so in female; sparsely punctate, rugulose, unicarinate, thinly squamose behind antennal insertions; deeply punctate and rugulose before antennal insertions in male; shining, punctate, not rugulose in female. Head black to piceous, closely squamose above base of rostrum. Antennae black, their scales pale brown, second funicular segment distinctly longer than third. Prothorax black, broadly rounded at sides, suddenly narrowed and slightly constricted near apex; disk evenly covered with subangular punctures; scales ovate, light brown on disk, pale silvery gray at sides; prosternum moderately emarginate, transversely impressed.

Elytra black, convex; scales ovate, 2–3 rows per interval, very pale gray toward sides of elytra, medium yellowish brown in a broad sutural stripe and along outer margins. Underside of thorax and abdomen black, thinly covered with ovate pale gray scales. Femora moderately clavate, ferruginous, covered with ovate and elongate yellowish gray scales. Tibiae rufopiceous, covered with elongate gray scales. Tarsi black, third segment much broader than first two; fourth segment only slightly exceeding third; claws connate near their bases, slightly divergent, outer claws distinctly shorter than inner claws on midtarsi and hindtarsi, but longer than inner claws on foretarsi. Median lobe of male genitalia nearly parallel at sides; internal sac not exceeding the median lobe, covered with fine spicules (fig. 90).

Measurements: The following measurements were taken from 6 males and 6 females from Kimball, Nebr. (B. D. Valentine), 1 male from Garden of the Gods, Colorado (CU), and 1 female from "Ariz." (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 00	1. 80–2. 20	2. 08	1. 90–2. 30
Elytra length	1. 39	1. 25–1. 50	1. 38	1. 30–1. 55
Elytra width at base	0. 78	0. 69–0. 89	0. 82	0. 76–0. 92
Prothorax length	0. 52	0. 46–0. 59	0. 56	0. 53–0. 66
Prothorax width	0. 59	0. 53–0. 66	0. 66	0. 63–0. 73
Rostrum length	0. 73	0. 66–0. 83	1. 01	0. 92–1. 06
Rostrum length before antennal insertion	0. 27	0. 26–0. 30	0. 52	0. 46–0. 56
Funicular segment 2 length	0. 061	0. 051–0. 068	0. 065	0. 051–0. 068
Funicular segment 3 length	0. 034		0. 041	0. 034–0. 051

BIOLOGY: The single host-plant record which follows was taken from the collection of B. D. Valentine: "On *Coreopsis* sp.," Kimball, Nebr., June 22 (35 specimens) B. and B. Valentine.

DISCUSSION: The differences between this species and *S. griseus* are given in the discussion of *S. griseus* and in the key on page 315.

S. pleuralis was found to be represented by very few specimens in collections, but the Kimball, Nebraska, material collected by B. D. Valentine in 1953 consisted of 35 specimens.

DISTRIBUTION: The few existing records indicate that *S. pleuralis* may be found in the southern Rocky Mountains and on the western border of the Great Plains. The "Ariz." record could have come from either the southern portion of the Colorado Plateau or the basin and range province. The following specimens were examined:

ARIZONA: "Ariz." (USNM).
COLORADO: EL PASO CO.: Garden of the Gods, July 5 (CU).
NEBRASKA: KIMBALL CO.: Kimball, June 22 (B. D. Valentine).
Total specimens examined: 37.

SMICRONYX RESPLENDENS GROUP

DESCRIPTION: Body rather elongate and subcylindrical. Prothorax broadly rounded on sides, narrowed toward apex; disk evenly but not very closely covered with shallow rounded punctures. Elytra elongate, the sides subparallel for about three-fifths of their length, then gradually convergent to apex; humeri distinct, declivities indistinct. Fourth tarsal joint rather elongate. Propygidium of male bearing a small projection above each of the spiracles and having a series of strong setae on the lobes of the posterior margin (fig. 38). Median lobe of male genitalia elongate, the sides subparallel (figs. 91, 92).

DISCUSSION: The two species in this group are unlike any other species in the subgenus *Pseudosmicronyx* in having the small projections and heavy spines on the propygidia of the males, as described above. The male genitalia of this group resemble those of the *S. abnormis*, *S. griseus*, and *S. ovipennis* groups, but the general body shape of those groups is not elongate, as in the *S. resplendens* group. Thus, *S. resplendens* Dietz and *S. pusio* LeConte apparently form a small but very distinct group.

Map 16 gives the distribution of the group.

MAP 16.—Distribution of the specimens examined of the *resplendens* group of *Smicronyx*. ▲, *S. pusio*; ○, *S. resplendens*.

Key to the Species of the *Smicronyx resplendens* Group

1. Body covered with broad, imbricate, white to yellowish white scales; femora very strongly clavate . . . . . **S. resplendens** Dietz (p. 320)
   Body covered with golden brown scales; femora not strongly clavate. **S. pusio** LeConte (p. 321)

Smicronyx resplendens Dietz

FIGURES 91, 137

Smicronyx resplendens Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 142, 1894. Type: Female, California, CM (Ulke collection).

DESCRIPTION: Rostra of both sexes dark reddish brown, moderately arcuate, coarsely punctate and squamose behind antennal insertions, glabrous and more finely punctate before antennal insertions; more tapered and polished before antennal insertions in female than in male. Front of head covered with broad, overlapping yellowish white scales. Second funicular segment of antenna distinctly longer than third funicular joint. Antennal club ovate, reddish brown, sparsely pubescent. Prothorax broadly rounded at sides, suddenly narrowed toward apex; closely covered with broad whitish scales (which have a violet iridescence) intermixed with narrow brownish scales; surface almost black, disk covered with large, shallow, rounded punctures. Prosternum shallowly emarginate, slightly impressed transversely.

Elytra moderately convex above, humeri distinct, declivities indistinct; covered with broad, imbricate, yellowish white scales, each interval bearing a row of elongate, setalike whitish scales. Scutellum small but distinct. Scales on venter of thorax and abdomen similar to broad scales of dorsum. Legs closely covered with scales similar to those of elytra. Femora strongly clavate. Tibiae not slender, slightly expanded toward apex. Fourth tarsal segment elongate, considerably exceeding third segment; claws slightly divergent, connate near base.

MEASUREMENTS: The following measurements were taken from 5 males and 3 females from the Argus Mountains, Calif. (April 19) plus 1 female from Kern Co., Calif. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 52	2. 45–2. 60	2. 41	2. 20–2. 50
Elytra length	1. 73	1. 70–1. 80	1. 60	1. 40–1. 70
Elytra width at base	0. 94	0. 90–1. 00	0. 90	0. 85–0. 95
Prothorax length	0. 72	0. 70–0. 75	0. 69	0. 60–0. 75
Prothorax width	0. 80		0. 72	0. 65–0. 75
Rostrum length	0. 86	0. 80–0. 90	1. 00	0. 90–1. 10
Rostrum length before antennal insertion	0. 35	0. 30–0. 40	0. 47	0. 45–0. 50
Funicular segment 2 length	0. 068		0. 062	0. 058–0. 068
Funicular segment 3 length	0. 045	0. 042–0. 051	0. 048	0. 042–0. 051

BIOLOGY: No information is available on the biology of this species.

DISTRIBUTION: The few existing records of *S. resplendens* are from the southern portions of the California Valley section and Sierra Nevada section of the Pacific mountain system. The following specimens were examined:

CALIFORNIA: INYO CO.: Argus Mountains, April 19 (USNM). KERN CO.: No data (USNM).

Total specimens examined: 9.

Smicronyx pusio LeConte

FIGURES 38, 92, 138

Smicronyx pusio LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 171, 1876. Type: Female, Cape San Lucas, Mexico (collected by "Mr. Xantus"), MCZ 1900 (J. L. LeConte collection).

Smicronyx rufulus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 167, 1894. New synonymy. Lectotype, here designated: Female, Riverside, Arizona, collected by H. F. Wickham, MCZ 1917 (Dietz collection).

Synertha wickhami Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 174, 1894. Type: Female, Riverside, Arizona, collected by Wickham, MCZ 1925 (Dietz collection).

DESCRIPTION: Body and legs but not head entirely light reddish brown, covered with golden brown slightly iridescent ovate to suborbicular scales. Rostra of both sexes light reddish brown, moderately curved, only slightly tapered from base to apex; squamose, closely but not coarsely punctate behind antennal insertions; striate behind antennal insertions in male, but not in female; surface dull, sparsely punctate in male, shining and sparsely punctate in female. Head piceous, closely squamose. Antennae reddish brown, their scales light brown. Prothorax moderately rounded at sides, moderately narrowed toward apex; setiform scales stout, darker than ovate scales in some specimens; punctures of disk nearly round, evenly spaced; prosternum moderately emarginate, transversely impressed.

Elytra elongate, not very convex, sides subparallel from base to point of convergence. Femora moderately clavate; scales broadly ovate. Tibiae stout, scales mostly elliptical, a few elongate. Third segment of tarsi distinctly broader than first two; claws connate for approximately half their length, subparallel. Sides of median lobe of male genitalia subparallel; internal sac not exceeding median lobe in length, covered with small dark spines (fig. 92). Arms of spiculum ventrale of female genitalia forming a distinct V, anterior end of stem markedly expanded (fig. 138).

MEASUREMENTS: The following measurements were taken from 6 males and 5 females from "S. Marfa," Tex. (USNM) and 2 males

and 3 females from Tucson, Ariz. (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 03	1. 80–2. 10	2. 04	1. 80–2. 40
Elytra length	1. 42	1. 25–1. 50	1. 43	1. 30–1. 60
Elytra width at base	0. 71	0. 66–0. 73	0. 70	0. 63–0. 83
Prothorax length	0. 50	0. 46–0. 53	0. 50	0. 43–0. 59
Prothorax width	0. 55	0. 49–0. 61	0. 55	0. 49–0. 63
Rostrum length	0. 67	0. 63–0. 69	0. 75	0. 66–0. 83
Rostrum length before antennal insertion	0. 25	0. 23–0. 26	0. 34	0. 30–0. 40
Funicular segment 2 length	0. 050	0. 045–0. 051	0. 046	0. 042–0. 051
Funicular segment 3 length	0. 033	0. 030–0. 034	0. 033	0. 025–0. 034

BIOLOGY: A few host-plant records were taken from the material examined: "Ex *Hymenoclea monogyra*," Santa Rita Mountains, Ariz., April 25 (USNM); "On flowers of *Hymenoclea monogyra*," Tucson, Ariz., May 6 (USNM); "on *Hymenoclea monogyra*," south of Marfa, Texas, Sept. 10 (USNM); "*Chilopsis linearis*," 12 miles north of Presidio, Texas, April 26 (USNM).

DISCUSSION: A direct comparison of the types of *Smicronyx pusio* LeConte and *Synertha wickhami* Dietz revealed very little difference between the two specimens. Therefore, they are considered conspecific by this writer. A similar comparison of the type specimen of *S. pusio* and the lectotype of *S. rufulus* Dietz revealed no differences which could be taken as indications that the two specimens were not conspecific.

DISTRIBUTION: Present records indicate that *S. pusio* may be found in the Great Bend section of the Mexican highland, in the southern portion of the basin and range province, and in the Los Angeles range and lower California sections of the Pacific mountain system. The following specimens were examined:

ARIZONA: GRAHAM CO.: Gila Valley, Aug. 1 (CAS). PIMA CO.: Tucson, May 6 (USNM). SANTA CRUZ CO.: Patagonia, Aug. 21 (CNHM); Santa Rita Mountains, April 25 (CNC & USNM). YAVAPAI CO.: Castle Hot Springs, June 21 (USNM).

CALIFORNIA: RIVERSIDE CO.: Riverside (USNM).

TEXAS: South of Marfa, Sept. 10 (USNM), 12 miles north of Presidio, April 26 (USNM).

Total specimens examined: 93.

Subgenus *Desmoris* LeConte, 1876[9]

Desmoris LeConte, Proc. Amer. Phil. Soc., vol. 15, p. 169, 1876. Type species, here designated: *Rhynchaenus constrictus* Say, 1823.

DESCRIPTION: Rostrum straight or almost straight, not smooth and polished in the male; either straight or curved, much longer, smooth and polished (except at the base) in the female (compare

figs. 9, 10, 28, 29). Antennae inserted behind the middle of the rostrum in the female (fig. 29), slightly before the middle in the male (fig. 28). Second segment of the antennal funicle longer than the third segment (fig. 34). External lobes of the mandibles fairly well developed (fig. 47). Prosternum emarginate at the anterior edge but not concave and not bordered by antecoxal ridges (fig. 37). Humeri distinct to prominent, the scutellum distinct (fig. 8). Tarsal claws larger, less connate and more divergent than in the subgenus *Smicronyx* (figs. 39, 42). Median lobe of the male genitalia more elongate (except in *scapalis* LeConte, fig. 93) than in the subgenera *Smicronyx* and *Pachyphanes*, lightly sclerotized dorsally and ventrally, the sides subparallel (figs. 93–101). Female genitalia with the spiculum ventrale elongated as in the subgenus *Pseudosmicronyx* (figs. 139–147), but the arms not forming a distinct V except in a few species of the *fulvus* group (fig. 145).

Host plants: Most of the known host plants of species in this subgenus belong to the family Compositae.

Distribution: The species placed in this subgenus are known only from North America.

Key to the Species Groups of Subgenus *Desmoris*

1. Rostra of both sexes laterally expanded at apex, not very smooth or shining before antennal insertions in females . . . . . **scapalis** group (p. 323)
   Rostrum not expanded at apex in either sex, always smooth and shining before antennal insertions in females 2
2. Rostra of both sexes almost straight (figs. 9,10); emargination of prosternum rounded . . . . . **fulvus** group (p. 332)
   Rostra of females distinctly curved (fig. 29); emargination of prosternum subquadrate . . . . . **constrictus** group (p. 326)

SMICRONYX SCAPALIS GROUP

Description: Very large, usually over 4.0 mm. in length. Rostra of both sexes laterally expanded at apex, punctate and subcarinate from base to apex. Rostrum of the male not much shorter than that of the female, but slightly curved instead of straight, as in the female. Second joint of antennal funicle subequal to first and much longer than third joint. Body and legs covered with nearly unicolorous scales. Elytra strongly convex above, humeri distinct, declivities indistinct. Median lobe of the male genitalia not as elongate as in the other two groups of species of subgenus *Demoris* (compare figs. 93, 94–101).

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[9] The degree of separation of the ventral margins of the eyes, originally used by Dietz (1894) in distinguishing *Smicronyx* and *Pseudosmicronyx* from *Desmoris*, has not been found consistent enough to be useful as a subgeneric character.

DISCUSSION: The single species in this group agrees in all respects with the description of subgenus *Desmoris* (p. 322) but, as was noted, the median lobe of the male genitalia is short (as in subgenera *Smicronyx* and *Pachyphanes*). The rostrum of the female, while long and rather straight, as in the *S. fulvus* group, is not very smooth or terete before the antennal insertions. Thus, while *S. scapalis* is apparently closely related to the rest of the species in subgenus *Desmoris*, it is so much less modified in certain respects that it is difficult to place it in either of the other two groups of species. Possibly this species represents an early group of *Desmoris* species which did not become as strongly modified in the rostrum and genitalia, as did the *S. fulvus* and *S. constrictus* groups.

Map 17 gives the distribution of this group.

MAP 17.—Distribution of the specimens examined of the *scapalis* group of *Smicronyx*. ★, *S. scapalis*.

***Smicronyx scapalis* (LeConte)**

FIGURES 93, 139

Desmoris scapalis LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 168, 1876. Type: Female, Kansas, MCZ 1885 (J. L. LeConte collection).

DESCRIPTION: Rostra of both sexes reddish brown; sparsely squamose behind the antennal insertions; longer and more shining before the antennal insertions in the female than in the male. Head reddish brown to piceous, finely alutaceous, the front sparsely scaly. Antennae reddish brown, the club piceous in some specimens. Prothorax reddish brown to piceous, strongly rounded at the sides, narrowed and slightly constricted some distance behind the apex; disk closely but not coarsely punctate, the punctures arranged in concentric circles; scales broadly ovate, pale brown except for a few medium brown scales

near the middle of the disk; prosternum shallowly emarginate, slightly concave.

Elytra reddish brown, the intervals covered with scales similar in shape and color to those of the prothorax, the darker scales so arranged as to give a mottled semibanded effect in some specimens. Underside of the thorax and abdomen covered with light tan scales similar to the light scales of the dorsum. Femora reddish brown, strongly clavate, covered with elongate-ovate light tan scales. Tibiae stout, reddish brown, covered with elongate light tan scales; third pair noticeably expanded at the apex. Tarsi rufopiceous, the third segment much broader than the first two; claws connate for slightly less than half their length. Distal portion of the internal sac of the male genitalia covered with fine spines; spiculum gastrale with a dorsal "wing" at the anterior end (fig. 93). Stem of the spiculum ventrale of the female genitalia flattened and laterally expanded at the anterior end (fig. 139).

Measurements: The following measurements were taken from 3 males from Garden City, Kans. (CNHM), 3 males and 1 female from "Kans." (CAS), a female from Reno Co., Kans., a female from Mount Hope, Kans. (CAS), a male from "Ks." (CNHM), a male from Medford, Okla. (CU), and 2 females from Brownwood, Tex. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	4. 30	3. 90–4. 50	4. 50	4. 00–5. 00
Elytra length	2. 90	2. 50–3. 20	3. 02	2. 70–3. 30
Elytra width at base	1. 90	1. 70–2. 00	2. 02	1. 90–2. 20
Prothorax length	1. 30	1. 20–1. 40	1. 41	1. 30–1. 60
Prothorax width	1. 48	1. 20–1. 50	1. 50	1. 38–1. 70
Rostrum length	1. 95	1. 60–2. 10	2. 25	1. 95–2. 60
Rostrum length before antennal insertion	0. 66	0. 60–0. 70	1. 03	0. 89–1. 20
Funicular segment 2 length	0. 153	0. 136–0. 170	0. 174	0. 153–0. 187
Funicular segment 3 length	0. 093	0. 085–0. 102	0. 098	0. 102–0. 085

Biology: Pierce (1907) described the biology of this species from observations made in the vicinity of Corsicana, Texas. He named *Sideranthus* (now *Haplopappus*) *rubignosus* as the principal host plant. The adults appear on the plants in June and feed on leaf buds during June and July. Oviposition begins in July and continues through September. The larvae, which appear as early as July 25, feed among the achenes in the flower heads and form a hard cell of excrement as they feed. When the seeds drop from the receptacle, the larvae drop to the ground, burrow into the soil, and form an earthen cell. Pupation does not take place until sometime in May or even later in the spring of the following year. The earliest pupa recorded was taken on May 31. Adult specimens have been taken from

Grindelia squarrosa at Clarendon, Tex., by Pierce, and "on cotton" at Gurley, Tex., by A. C. Morgan. Pierce also stated that the hymenopterous parasites *Bracon dorsator* Say and *B. mellitor* Say were bred from larvae of *S. scapalis* by F. C. Pratt.

The host records which follow were taken from the material examined: "On *Sideranthus rubignosus*," Mexia, Tex., June 20 and 28 (USNM); "*Grindelia squarrosa*," Mexia, Tex., June 12 (USNM); "on *Grindelia squarrosa*," Clarendon, Tex., Aug. 11 (USNM); "on *Grindelia squarrosa*," Calvert, Tex., July 26 (USNM); "on *Grindelia squarrosa*," Brownwood, Tex., May 21 (USNM).

DISCUSSION: Blatchley and Leng (1916) considered *S. compar* (Dietz) to be the female of *S. scapalis*, probably because the rostral differences between male and female are not as distinct in *S. scapalis* as in most species in this subgenus, and the male of *S. compar* was not known at that time. There is a superficial resemblance between the two species, but the female of *S. compar* has a terete polished rostrum, which is not expanded at the apex, as it is in the female of *S. scapalis*. The male of *S. compar* has a stout straight rostrum, which is unexpanded at the apex, and the median lobe of its genitalia is much more elongate than in *S. scapalis*. The illustration of *S. scapalis*, published by Blatchley and Leng (1916, after Hunter and Hinds, 1905) is incorrect in showing the tarsal claws as free at the base and in failing to show a transverse groove at the base of the rostrum.

DISTRIBUTION: The locality records of the material examined indicate that *S. scapalis* may be found in the southern portion of the interior plains region. The following specimens were examined:

KANSAS: FINNEY CO.: Garden City (CAS), Garden City, June (CNHM, CNC, USNM). RENO CO.: July 8 (CAS & USNM). SEDGWICK CO.: July 9 (USNM), Mount Hope, June 8 (CAS). "Kans." (CAS). "Ks." (CNHM).

OKLAHOMA: GRANT CO.: Medford, June 16 (CU).

TEXAS: BROWN CO.: Brownwood, May 21 (USNM). COOKE CO.: Gainesville, June 24 (USNM). DALLAS CO.: Dallas, June 21 (USNM). DONLEY CO.: Clarendon, Aug. 11 (USNM). GRAYSON CO.: Denison, Aug. 26 (USNM). HUNT CO.: Lone Oak, Aug 11 (USNM). LIMESTONE CO.: Mexia, June 6–28 (USNM). NAVARRO CO.: Corsicana, July 6 (USNM). ROBERTSON CO.: Calvert, June 6, July 26 (USNM). VICTORIA CO.: Victoria, Sept. 6 (USNM).

Total specimens examined: 85.

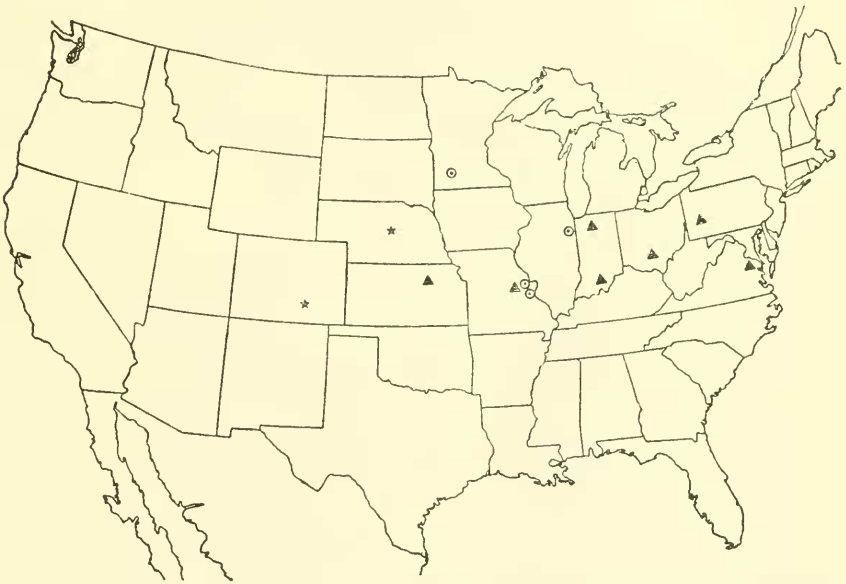
SMICRONYX CONSTRICTUS GROUP

DESCRIPTION: Smaller species than those of the *S. scapalis* group, not over 4 mm. in length. Rostrum of female slender, smooth and shining before antennal insertions, much longer than that of the male, moderately curved; unexpanded at apex in both sexes (figs. 28,

29). Second funicular segment of antenna subequal to the first, much longer than third segment. Emargination of prosternum subquadrate. Humeri of elytra prominent, declivities distinct. Third tarsal segment much broader than first two segments. Median lobe of male genitalia much more elongate than in the *S. scapalis* group (compare figs. 93, 94, 95).

Discussion: The species in this group are similar to those of the *S. fulvus* group, but the rostra are moderately curved in the females and the prosternal emargination is subquadrate, as opposed to an almost straight rostrum and rounded prosternal emargination in the *S. fulvus* group.

Map 18 gives the distribution of this group.



Map 18.—Distribution of the specimens examined of the *constrictus* group of *Smicronyx*. ⊙, *S. constrictus;* ▲, *S. pinguis;* ★, *S. sparsus.*

Key to the Species of the *constrictus* Group

1. Scales of the elytra uniform in size, tarsi black to piceous 2
   Scales of the elytra of two sizes, tarsi distinctly reddish brown.
   S. pinguis Blatchley (p. 330)
2. Smooth median line of prothorax broad, well defined toward the apex of prothorax, antennal club shining, usually glabrous at the base.
   S. sparsus Casey (p. 331)
   Smooth median line of prothorax narrow, poorly defined if present, antennal club not shining or glabrous at the base . . **S. constrictus** (Say) (p. 328)

Smicronyx constrictus (Say)

FIGURES 28, 29, 34, 94, 140; PLATE 1

Rhynchaenus constrictus Say, Journ. Acad. Nat. Sci. Philadelphia, vol. 3, p. 313, 1824. Neotype, here designated: Female, "Missuri," collected by Thomas Say, Naturhistoriska Riksmuseet, Stockholm.

Desmoris pervisus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 125, 1894. New synonymy. Lectotype, here designated: Female, "Dakota," MCZ 1887 (Dietz collection).

DESCRIPTION: Rostra of both sexes black to piceous; stout, slightly curved, punctate from base to apex, more coarsely punctate and squamose behind the antennal insertions in the male; slender, moderately curved, finely punctate and polished before the antennal insertions in the female. Head piceous, finely alutaceous, sparsely squamose in front. Antennae piceous, the first funicular segment slightly longer than the second. Prothorax black, rufopiceous near the apex; sides broadly rounded, moderately narrowed and constricted behind the apex; disk covered with closely spaced rounded punctures, a trace of a smooth median line present toward the apex; scales ovate to elongate-ovate, very light gray to white, very sparse toward the midline, but quite close on the sides.

Elytra black to piceous, the intervals coverd with small elliptical to ovate scales which are usually white, but may be light gray or very light yellow. Underside of the thorax and abdomen covered with small ovate white scales. Tibiae piceous, covered with small ovate white scales. Tarsi black, covered with small white scales; fourth segment extending well beyond the third; claws connate near the base, moderately divergent. Internal sac of the male genitalia constricted near the middle, the spines very small; spiculum gastrale not hooked at the anterior end (fig. 94). Spiculum ventrale of the female genitalia not expanded at the anterior end (fig. 140).

MEASUREMENTS: The following measurements were taken from a male and a female from Kansas (CAS), a female from "Kans." (USNM), 2 males and 2 females from Cross Keys, Mo. (USNM), 2 females from Blackjack, Mo. (USNM), and a female from Kankakee, Ill. (CNHM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 20	2. 90–3. 30	3. 54	2. 85–3. 90
Elytra length	2. 20	2. 00–2. 30	2. 38	1. 90–2. 60
Elytra width at base	1. 31	1. 19–1. 38	1. 40	1. 15–1. 49
Prothorax length	0. 84	0. 79–0. 92	0. 94	0. 79–1. 00
Prothorax width	0. 96	0. 89–1. 00	1. 08	0. 86–1. 15
Rostrum length	1. 26	1. 15–1. 32	1. 97	1. 65–2. 08
Rostrum length before antennal insertion	0. 48	0. 46–0. 49	1. 21	0. 96–1. 38
Funicular segment 2 length	0. 107	0. 102–0. 119	0. 138	0. 102–0. 153
Funicular segment 3 length	0. 062	0. 051–0. 068	0. 070	0. 051–0. 085

SMICRONYX CONSTRICTUS (SAY)

Neotype specimen, a female collected and determined by Say, now in Naturhistoriska Riksmuseum (for a discussion of this specimen see p. 329). Photograph by J. G. Franclemont.

Biology: The only biological information obtained on this species are these two host plant records: "*Helianthus tuberosa,*" Blackjack, Mo., Aug. 19 (USNM); "*Helianthus tuberosa,*" Cross Keys, Mo., Aug. 23 (USNM).

Discussion: The type specimen or type series of *S. constrictus* was evidently destroyed with most of the rest of Thomas Say's collection. At least, the type could not be found in a part of the remains of the Say collection, located at the Philadelphia Academy of Sciences. Therefore, a neotype specimen was selected. The specimen selected as the neotype was evidently collected in Missouri and determined by Say as *Rhynchaenus constrictus* Say. The specimen was then sent by Say to the European coleopterist Gyllenhal, who referred to it in a description of the species under the name *Erirhinus constrictus* Say in Schoenherr's "Genera et Species Curculionidum" (vol. 3, 1836). Upon examination of the neotype specimen and the descriptions of Say and Gyllenhal (all of which agree very closely), it is apparent that the species to which many authors (i.e., Dietz, 1894, and Blatchley and Leng, 1916) refer as *Desmoris constrictus* (Say) is not the species described by Say, but *Smicronyx sordidus* LeConte. As can be seen in the photograph of the neotype (plate 1) and in the original description, *S. constrictus* (Say) should have a distinctly curved rostrum. However, the rostrum (particularly in the female) of the *S. constrictus* of the above authors is almost straight. This misnamed species is considered by the writer to agree, in respect to external structure, with the lectotype of *S. sordidus* LeConte. The true *S. constrictus* (Say) seems to agree structurally with the lectotype of *Desmoris pervisus* Dietz, and the latter name has been placed in synonymy with *Smicronyx constrictus* (Say).

Distribution: All the material examined was collected at various localities in the central lowlands province of the interior plains region. The following specimens were examined:

Illinois: kankakee co.: Along river 4 miles above Kankakee, June 23 (CNHM).

Kansas: No data (CAS). "Kans.," (USNM). Minnesota: yellow medicine co.: Hanley Falls, Aug. 1 (USNM).

Missouri: st. charles co.: Cross Keys, Aug. 23 (USNM). st. louis co.: Blackjack, Aug. 19 (USNM).

Total specimens examined: 10.

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Smicronyx pinguis Blatchley

FIGURES 95, 141

Smicronyx pinguis Blatchley, *in* Blatchley and Leng, Rhynchophora or weevils of northeastern America, p. 215, 1916. Type: Female, "Marshall Co., Ind.," May 28, 1904, collected by W. S. Blatchley, Purdue University (W. S. Blatchley collection).

DESCRIPTION: Rostra of both sexes black, closely but not roughly punctate and squamose behind the antennal insertions; moderately curved, polished, finely punctate before the antennal insertions in the female; stout, slightly curved, strongly punctate before the antennal insertions in the male. Head black, shining, sparsely punctate. Antennae rufopiceous, the second funicular segment much longer than the third. Prothorax piceous, broadly rounded at the sides, moderately narrowed and slightly constricted behind the apex; disk evenly covered with rounded punctures, no smooth median line present; scales of the disk sparse, rather linear, yellowish white; prosternum deeply emarginate, moderately concave.

Elytra piceous, the intervals thinly covered with elongate-ovate scales, some of which are white, while others are smaller and light tan in color. Underside of the thorax and abdomen covered with small elongate-ovate white scales. Femora piceous, strongly clavate, covered with elongate-ovate white scales. Tibiae piceous, thinly covered with linear yellowish white scales; hind pair noticeably expanded at the apices. Tarsi reddish brown, the fourth segment extending well beyond the third, the claws connate near the base, moderately divergent. Internal sac of the male genitalia covered with large, heavy spines; spiculum gastrale distinctly hooked at the anterior end (figure 95).

MEASUREMENTS: The following measurements were taken from 7 males and 3 females from Vienna, Va. (USNM), 1 male and 1 female from Pittsburgh, Pa. (CM), and 1 female from Crawford Co., Ind. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 30	3. 00–3. 70	3. 50	3. 40–3. 80
Elytra length	2. 20	2. 00–2. 40	2. 30	2. 20–2. 50
Elytra width at base	1. 41	1. 35–1. 49	1. 49	1. 38–1. 65
Prothorax length	0. 97	0. 89–1. 03	1. 04	1. 00–1. 15
Prothorax width	1. 04	0. 92–1. 09	1. 11	1. 06–1. 19
Rostrum length	1. 23	1. 15–1. 36	2. 04	1. 82 -2. 31
Rostrum length before antennal insertion	0. 47	0. 43–0. 53	1. 25	1. 15–1. 49
Funicular segment 2 length	0. 114	0. 102–0. 136	0. 156	0. 153–0. 170
Funicular segment 3 length	0. 068		0. 088	0. 085–0. 102

Biology: The only biological information available on this species is this host record: "On *Helianthus giganteus*," Vienna, Va., June 26 (USNM).

Discussion: The single female specimen from which Blatchley (*in* Blatchley and Leng, 1916) described *S. pinguis* is slightly smaller than average, but agrees very well otherwise with the rest of the material examined.

This species closely resembles *S. constrictus* (Say), but may be distinguished from that species by the linear scales of the prothoracic disk, two sizes and colors of elytral scales, and reddish brown tarsi of *S. pinguis*, as opposed to oval scales on prothoracic disk, uniform size and color of the elytral scales, and black tarsi of *S. constrictus*. In *S. pinguis*, the internal sac of the male genitalia is covered with large spines, and this is not true of *S. constrictus*.

Distribution: Present records indicate that the range of *S. pinguis* extends across the approximate middle of the Atlantic coastal plain, the Appalachian highlands, and the interior plains region. The following specimens were examined:

Indiana: crawford co.: July 14 (CNHM).
Kansas: pottawatomie co.: Onaga (USNM).
Missouri: st. louis co.: St. Louis (CNC).
Ohio: pike co.: July 31 (ELS).
Pennsylvania: allegheny co.: Pittsburgh, June 11, July 4, 20, 22 (CM).
Virginia: fairfax co.: Vienna, June 26 (USNM).
Total specimens examined: 26.

Smicronyx sparsus Casey

Smicronyx sparsus Casey, Ann. New York Acad. Sci., vol. 6, p. 394, 1892. Type: Male, Garland, Colorado, June 6, USNM 36706 (T. L. Casey collection).
Desmoris obesus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 124, 1894. Type: Female, "Nebr.," CM (Ulke collection).

Description: Body and legs piceous throughout. Rostrum subglabrous and deeply punctate before antennal insertions in male; finely and sparsely punctate in female; closely squamose behind antennal insertions in both sexes. Head finely alutaceous, sparsely punctate in front. Antennal club shining, usually glabrous at base. Prothorax broadly rounded at sides, slightly narrowed toward apex; punctures shallow and rounded, becoming more distant toward middle of disk; smooth, median line present for over half distance from apex to base; scales small, oval, very light gray, becoming sparse toward the middle of disk; prosternum deeply emarginate, transversely impressed.

Elytral intervals thinly covered with small oval gray scales. Underside of thorax and abdomen sparsely covered with broadly oval light gray scales. Femora strongly clavate, sparsely covered with elongate

pale gray scales. Tibiae slightly expanded toward apices, scales similar to those on the femora. Tarsal claws connate for about one-third their length, moderately divergent.

MEASUREMENTS: The following measurements were taken from the type specimen (a male) of *S. sparsus*, the lectotype (a female) of *D. obesus* (Dietz), and a female from "Col." (USNM). All measurements are in millimeters; an asterisk indicates measurements taken only from the type specimen of *S. sparsus* Casey:

	Male	*Females*	
		Mean	*Extremes*
Body length	2. 55	3. 45	3. 20–3. 70
Elytra length	1. 70	2. 30	2. 10–2. 50
Elytra width at base	1. 05	1. 49	1. 38–1. 60
Prothorax length	0. 65	1. 03	0. 96–1. 10
Prothorax width	0. 75	1. 14	1. 03–1. 25
Rostrum length	1. 00	1. 69	1. 49–1. 90
Rostrum length before antennal insertion	0. 50	1. 17	1. 15–1. 20
Funicular segment 2 length		0. 136*	
Funicular segment 3 length		0. 085*	

BIOLOGY: At present, no information is available on the biology of this species.

DISCUSSION: Except for sexual dimorphism, the types of *Smicronyx sparsus* Casey and *Desmoris obesus* Dietz agree so closely in external features it seems unlikely that they represent two distinct species. Therefore the name *Desmoris obesus* bas been placed in synonymy with the earlier name, *Smicronyx sparsus* Casey.

This species strongly resembles *S. constrictus* (Say), but *S. constrictus* has larger and more closely spaced scales and a much less distinct smooth median line of the prothorax than does *S. sparsus*. In addition, the antennal club is usually glabrous at the base in *S. sparsus*, but is pubescent in *S. constrictus*.

DISTRIBUTION: The few existing records indicate that this species exists in the Great Plains region and the front range section of the southern Rocky Mountains.

SMICRONYX FULVUS GROUP

DESCRIPTION: Similar in size to the *S. constrictus* group. Rostra of both sexes almost straight; cylindrical and smooth before antennal insertions in female (fig. 10). Second segment of antennal funicle shorter than first except in *S. incertus* (Dietz), distinctly longer than third segment. Emargination of prosternum rounded. Elytra moderately convex, widest at base, humeri prominent and declivities distinct. Third tarsal segment much broader than first two segments.

Median lobe of male genitalia quite elongate, as the *S. constrictus* group (compare figs. 94, 96).

Discussion: The major differences between the species of this group and those of the *S. constrictus* group lie, as noted in the discussion of the latter group on p. 327, in the more strongly curved rostrum of the female and the subquadrate prosternal emargination of the *constrictus* group. Otherwise, the groups are very similar. Both groups apparently prefer various species of *Helianthus* and related genera as plant hosts.

Map 19 gives the distribution of this group.

Map 19.—Distribution of the specimens examined of the *fulvus* group (except *S. floridanus* Dietz) of *Smicronyx*. ◬, *S. compar*; △, *S. incertus*; ▲, *S. fulvus*; ⊙, *S. rectirostris*; ◯, *S. humilis*; ★, *S. sordidus*.

Key to the Species of the *Smicronyx fulvus* Group

1. Scales of the dorsum always some shade of yellow (fulvus, ochreous, luteus, etc.) 2
   Scales of the dorsum gray to white, not yellow 4
2. Body color entirely reddish brown, the second segment of the funicle subequal to the first, scales of the dorsum a uniform brownish yellow.
   S. incertus (Dietz) (p. 343).
   Body color partly black or piceous, second segment of the funicle shorter than the first, scales plain yellow to a bright fulvous 3
3. Scales of the elytra not uniform, some lighter yellow and in irregular bands, giving the elytra a mottled appearance, rostrum of the female slightly curved . . . . . **S. compar** (Dietz) (p. 340).
   Scales of the elytra a uniform fulvous, rostrum of the female almost straight.
   S. fulvus LeConte (p. 334)

4. Smooth median line of the prothorax at least partly present and distinct . . 5
   Smooth median line of the prothorax absent 6
5. Rostrum of both sexes slightly constricted before the basal groove; scales of the elytra uniform in color, closely spaced.
   S. sordidus LeConte (p. 336).
   Rostrum not constricted before the basal groove; scales of the elytra widely spaced, light gray and tan in color . . . . **S. floridanus** (Dietz) (p. 342)
6. Femora, tibiae, and tarsi all ferruginous; the rostra almost straight in both sexes, rugose punctate laterally before antennae in males.
   S. rectirostris Blatchley (p. 345).
   Femora, tibiae, and tarsi usually rufous; rostrum of the male slightly curved, punctate but smooth before antennae . . . **S. humilis** (Dietz) (p. 339).

Smicronyx fulvus LeConte

FIGURES 8–10, 96, 142

Smicronyx fulvus LeConte, Proc. Amer. Philos. Soc., vol. 15, pp. 172–173, 1876. Type: Female, Missouri, collected by C. V. Riley, MCZ 1891 (J. L. LeConte collection).

DESCRIPTION: Rostra of both sexes black to piceous, roughly punctate behind the antennal insertions; much more shining, sparsely punctate before the antennal insertions in the female than in the male. Head finely alutaceous, sparsely punctate and very sparsely squamose. Antennae piceous, the basal portion of the club glabrous and shining. Prothorax broadly rounded at the sides, moderately constricted near the apex; disk closely and evenly punctate, without a smooth median line; scales elongate-ovate, pale fulvous; prosternum shallowly emarginate, transversely impressed.

Elytra black to ferruginous, the intervals covered with small ovate fulvous scales. Underside of the thorax covered with grayish white scales; scales of the underside of the abdomen light ochreous. Femora ferruginous, strongly clavate, covered with grayish elongate-ovate scales. Tibiae stout, ferruginous, covered with narrow, whitish scales; hind pair distinctly dilated at the apex. Tarsi rufopiceous, fourth segment extending considerably beyond the third; claws connate at the base, moderately divergent. Median lobe of the male genitalia gradually narrowed from base to apex. Stem of spiculum ventrale of female genitalia curved and somewhat expanded at the anterior end (fig. 142).

MEASUREMENTS: The following measurements were taken from 4 males and 3 females from the Sierra Ancha Mountains, Ariz. (CAS), 1 male from Topeka, Kans. (USNM), and 2 males and 5 females from Wyandotte Co., Kans. (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 85	2. 30–3. 00	2. 94	2. 80–3. 20
Elytra length	2. 00	1. 60–2. 20	2. 00	1. 80–2. 20
Elytra width at base	1. 07	0. 86–1. 22	1. 09	1. 00–1. 22
Prothorax length	0. 71	0. 56–0. 83	0. 76	0. 69–0. 83
Prothorax width	0. 82	0. 63–0. 92	0. 84	0. 79–0. 92
Rostrum length	0. 94	0. 83–1. 00	1. 14	1. 06–1. 25
Rostrum length before antennal insertion	0. 37	0. 33–0. 40	0. 60	0. 59–0. 66
Funicular segment 2 length	0. 064	0. 051–0. 085	0. 072	0. 068–0. 085
Funicular segment 3 length	0. 045	0. 034–0. 051	0. 051	

Biology: Tuttle (1951) reported finding *S. fulvus* breeding in the flower heads of *Helianthus annuus* Linnaeus and finding the adults on the flowers of *Heliopsis helianthoides* Linnaeus in central Illinois. Schwitzgebel and Wilbur (1942) reported collecting this species on ironweed (*Vernonia interior* Small) in early August at Manhattan, Kansas. The records of the host plants which follow were taken from the material examined: "On sunflower," Urbana, Ill., Sept. 5 (USNM); "sunflower head," Wichita, Kans., Aug. 12 (USNM); "on *Helianthus* sp.," Oklahoma City, Okla., Aug. 1 (USNM); "sunflower," Sikeston, Mo., Sept. 29 (USNM); "fls. *Helianthus*," Boulder, Colo. (USNM); "on wild sunflower," Sierra Ancha Mountains, Ariz., Oct. (CAS); "sun-flower," Bountiful, Utah, Sept. 15 (USNM); "on sunflower," The Dalles, Oregon, Aug. 9 (USNM); "Rudbeckiae flowers," Tryon, N. C. (USNM).

Discussion: This species bears a closer resemblance to *S. sordidus* LeConte than to the other species of the *S. fulvus* group, in general body shape and proportions, straightness of the rostrum, size and shape of scales (small and elliptical), and shape of genitalia (compare figs. 96, 97). However, the two species may be readily distinguished by the fulvous scales, absence of a smooth median line on the prothorax, and ferruginous femora of *S. fulvus*, as opposed to the gray or white scales, distinct smooth median line on the prothorax and piceous femora of *S. sordidus*.

Distribution: Present records indicate that *S. fulvus* has a very generalized distribution, which extends from the western Appalachian highlands across the interior plains region, the Rocky Mountain system and the basin and range province to (but not beyond) the Pacific mountain system. The following specimens were examined:

Alberta: Medicine Hat, Aug. 16 (USNM).

Arizona: gila co.: Sierra Ancha Mountains, Oct. (CAS). yavapai co.:

Senator Mine near Prescott, Sept. 9 (CNHM); Prescott (AMNH); Seligman (CNC).

COLORADO: BOULDER CO.: Boulder (USNM). DENVER CO.: Denver, Aug. 24 (USNM). GARFIELD CO.: Glenwood Springs, Aug. (CAS). MESA CO.: De Beque, July 26 (CNHM).

IDAHO: CANYON CO.: Parma, Aug. 13 (CAS).

ILLINOIS: CHAMPAIGN CO.: Urbana, Sept. 5 (USNM). COOK CO.: Schiller Park, Sept. 9 (CNHM).

KANSAS: KIOWA CO.: Belvidere, Aug. (CAS). RILEY CO.: Manhattan, Aug. 12 (USNM). SEDGWICK CO.: AUG. 6, (USNM); Mount Hope, AUG. 14 (CAS); Wichita, Aug. 12 (USNM). SHAWNEE CO.: Topeka (USNM). WYANDOTTE CO.: July 11, (CAS). "Kans." (USNM).

MISSOURI: SCOTT CO.: Sikeston, Sept. 29 (USNM). ST. LOUIS CO.: Creve Coer Lake, Sept. 20 (CAS).

MONTANA: "Mon." (AMNH).

NEBRASKA: LANCASTER CO.: Lincoln, Aug. 22 (USNM); Malcolm, July 21 (USNM).

NEW MEXICO: BERNALILLO CO.: Albuquerque (USNM). MCKINLEY CO.: Fort Wingate, Oct. (CNHM). OTERO CO.: Bent, Sept. (CU). SANDOVAL CO.: Jemez Mountains, Aug. 30 (CAS). SANTA FE CO.: Bandelier National Monument, July 7 (CNHM); Santa Fe, Aug. (CAS); Tesuque, Aug. (CAS). "N. Mex." (CNHM).

NORTH CAROLINA: POLK CO.: Tryon (USNM).

OKLAHOMA: OKLAHOMA CO.: Oklahoma City, Aug., Aug. 1 (USNM).

OREGON; WASCO CO.: The Dalles, Aug. 9 (USNM).

SOUTH DAKOTA: FALL RIVER CO.: Ardmore, Sept. 2 (USNM).

TEXAS: JEFF DAVIS CO.: Fort Davis, Sept. 15 (CU).

UTAH: DAVIS CO.: Bountiful, Sept. 15 (USNM). UTAH CO.: Lehi, Sept. 8 (USNM). SALT LAKE CO.: Salt Lake City, Aug. (CAS); Salt Lake City (Emigration Canyon), Aug. 3 (USNM).

WASHINGTON: GRANT CO.: Coulee City, Sept. 2 (USNM).

Total specimens examined: 152.

Smicronyx sordidus LeConte

FIGURES 97, 143

Smicronyx sordidus LeConte, Proc. Amer. Philos. Soc., vol. 15, p. 173, 1876. Lectotype, here designated: Male, Texas, MCZ 1889 (J. L. LeConte collection).

Desmoris montanus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 124, 1894. New synonymy. Lectotype, here designated: Female, Montana, MCZ 1886 (Dietz collection).

DESCRIPTION: Rostra of both sexes black to piceous, almost straight, slightly constricted before basal groove; stouter, closely but not coarsely punctate from base to apex, densely squamose behind antennal insertions in male; much longer, smooth, and shining except near base in the female. Head black, almost smooth, very sparsely squamose. Antennae rufopiceous throughout. Prothorax black, moderately rounded on sides, strongly narrowed and slightly constricted behind apex; disk evenly punctate except for a smooth median

line which runs from near the base to apex; closely covered with elongate-ovate scales, which are white in most specimens but yellowish white in some; prosternum moderately emarginate, transversely impressed.

Elytra piceous to black, intervals covered with small, elliptical, white to yellowish white scales. Underside of thorax and abdomen covered with rounded white scales. Femora piceous, moderately clavate, covered with scales similar to those of the elytra. Tibiae piceous to reddish brown, covered with elongate-ovate white scales; moderately expanded at the apices. Tarsi piceous, covered with white scales; fourth segment extending well beyond the third; claws connate near the base, moderately divergent. Spiculum gastrale of the male genitalia strongly bent at the anterior end. Spiculum ventrale of the female genitalia not expanded at the anterior end (fig. 143).

Measurements: The following measurements were taken from 2 males and 1 female from Tucson, Ariz. (CNHM), 4 males from Lawrence, Kans. (CNC), 4 males and 2 females from Colorado Springs, Col. (USNM), 5 females from the Jemez Mountains, N. Mex. (CAS), and 2 females from St. George, Utah (CAS). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 52	3. 00–3. 70	3. 59	3. 00–4. 10
Elytra length	2. 33	1. 90–2. 50	2. 34	2. 00–2. 70
Elytra width at base	1. 39	1. 30–1. 70	1. 50	1. 20–1. 80
Prothorax length	1. 00	0. 90–1. 10	1. 03	0. 90–1. 20
Prothorax width	1. 15	0. 95–1. 30	1. 14	0. 95–1. 40
Rostrum length	1. 33	1. 15–1. 40	2. 01	1. 65–2. 30
Rostrum length before antennal insertion	0. 46	0. 36–0. 53	1. 17	0. 86–1. 35
Funicular segment 2 length	0. 109	0. 102–0. 119	0. 117	0. 102–0. 136
Funicular segment 3 length	0. 068		0. 068	0. 051–0. 085

Biology: Under the name *Desmoris constrictus* (Say), this species was said by Blatchley and Leng (1916) to breed in the seeds of various sunflowers, pupating in the ground, and was reported by Tuttle (1951) to breed in the seeds of *Helianthus annuus* L. (common garden sunflower). Tuttle also reported finding adults of a "*Desmoris* near *constrictus* (Say)" on the flowers of *Silphium perfoliatum* L. and *Silphium terebinthinaceum* Jaquin in Illinois. The host-plant records which follow were taken from the material examined: "On sunflower," Cypress, Calif. (CU), San Fernando, Calif. (CAS), Farmersville, Tex. (USNM), Hondo, Tex. (USNM), McAllen, Tex. (USNM), Mercedes, Tex. (USNM), Brownsville, Tex. (USNM); "On *Helianthus annuus*," Boulder, Colo. (USNM); "on *Helianthus coronatus*," Boulder, Colo. (USNM); "on *Helianthus argophyllus*," Boulder, Colo. (USNM); "on

Alfalfa," Alamo, Tex., Chillicothe, Tex. (USNM); "on *Cassia* sp.," Victoria, Tex. (USNM); "ex Cotton," Waco, Tex. (USNM).

DISCUSSION: The lectotype of *Desmoris montanus* Dietz is evidently either teneral or lighter (in color) than the average specimen of *S. sordidus* LeConte. There is some individual variation in size and color in *S. sordidus*, and it is not difficult to find some specimens which are as large as the lectotype of *D. montanus* and more reddish brown than piceous.

In the past, many authors have applied the name *Desmoris constrictus* (Say) to the species which LeConte (1876) named *Smicronyx sordidus*. Upon examination of Say's description (1823) of *Desmoris* (then *Rhynchaenus*) *constrictus*, and a specimen (now the neotype) determined by Say as *Rhynchaenus constrictus*, it is evident that Say applied that name to a different species than the one described by LeConte as *Smicronyx sordidus* in 1876. A full discussion of the differences between the two species is given with the discussion of the neotype of *Smicronyx* (*Desmoris*) *constrictus* (Say).

DISTRIBUTION: *S. sordidus* is one of the most wide-ranging *Smicronyx* species in North America. Existing records indicate the presence of this species in parts of all the major regions west of the Atlantic coastal plain, including the interior plains region, the Gulf coastal plain, the southern Rocky Mountains, the basin and range province, and the Pacific mountain system. The following specimens were examined:

ARIZONA: "Ariz." (USNM). MARICOPA CO.: Phoenix (AMNH). PIMA CO.: Sept. 1 (USNM); Tucson, Aug. 5–7 (USNM); Tucson, Aug. 10 (CNHM). SANTA CRUZ CO.: Nogales, Aug. 10 (CNHM). YAVAPAI CO.: Prescott, (AMNH); Prescott, July 7 (CAS); Prescott (USNM); Seligman (USNM).

CALIFORNIA: KERN CO.: Bakersfield, May 5 (USNM). LOS ANGELES CO.: Aug. 25 (CNHM); Azusa, July (CAS); Hollywood, Aug. 24 (CAS); Norwalk, Aug. 24 (USNM); Norwalk, Aug. 31 (CNC); Pasadena (CAS); San Fernando, July 11 (CAS); Sierra Madre, Aug. 6 (CAS). ORANGE CO.: Aug. (CAS); Anaheim, Sept. 9 (AMNH); Cypress, Sept. 1 (CU). RIVERSIDE CO.: Banning, July 30 (USNM); Elsinore Lake, Sept. 1 (CAS). SAN BERNARDINO CO.: no data (CAS); Ontario, Aug. 2 (USNM); San Bernardino (CAS); San Bernardino (USNM). SACRAMENTO CO.: Sacramento (CAS). SAN DIEGO CO.: San Diego, July 28 (CU). SAN JOAQUIN CO.: Ripon (CNHM); Weston, July 15–Sept. 15 (CAS). STANISLAUS CO.: Westley, Aug. 5 (USNM). "Cal." (CNHM & USNM).

COLORADO: BOULDER CO.: Boulder, July, Aug. 8, 16, 21 (USNM). DELTA CO.: Delta, Sept. 10 (USNM). EL PASO CO.: Colorado Springs. (CAS); Colorado Springs, June 15–30 (USNM and CAS); Colorado Springs, July 20–26 (AMNH). LOGAN CO.: Aug. 23 (USNM). MESA CO.: Mesa, July 18–23 (CNHM). OTERO CO.: La Junta, Aug. 12 (AMNH).

ILLINOIS: COOK CO.: No data (CHNM). "Ill." (CNHM and USNM).

KANSAS: DOUGLAS CO.: Lawrence, Aug. 6 (CNC). RENO CO.: Sept. 16 (USNM). SHAWNEE CO.: Topeka, July 8, Aug. 6 (USNM). WICHITA CO.: Wichita (USNM). "Kans." (CAS and CNC).

MANITOBA: Aweme, Sept. 10 (CNC).

Missouri: st. louis co.: St. Louis, Aug. 19 (CU).

Nebraska: cherry co.: Valentine, Niobara Refuge, July 24 (USNM).

New Mexico: bernalillo co.: Albuquerque (AMNH, CAS, USNM). sandoval co.: Jemez Mountains, Aug. 7–Sept. 1 (CAS). santa fe co.: Santa Fe, Aug. (CAS); Tesuque, Aug. (CAS).

Oklahoma: cleveland co.: Norman, Aug. (USNM).

Texas: bexar co.: Alamo, April 20 (USNM). cameron co.: Brownsville, April 5, June 21 (USNM). collin co.: Farmersville, Sept. 11 (USNM). hidalgo co.: McAllen, May 31, June 14 (USNM); Mercedes, Jan. 23 (USNM); ¾ mile southwest of Weslaco, June 18 (USNM). hunt co.: Wolfe City, Aug. 13 (CU). jim wells co.: Robstown, May 24 (USNM). mclennan co.: Waco, June 19 (USNM). medina co.: Hondo, May 1 (USNM). travis co.: Austin, June 28 (USNM). uvalde co.: Uvalde, June 14 (USNM). victoria co.: Aug. 4 (USNM). webb co.: Laredo, June 12 (USNM). wilbarger co.: Chillicothe, Aug. 17 (USNM).

Utah: washington co.: St. George (AMNH); St. George, July (CAS & CNHM).

Washington: whitman co.: Wawawai, Aug. 30 (CNHM).

West Virginia: barbour co.: Philippi, Sept. (CM).

Total specimens examined: 317.

Smicronyx humilis (Dietz), new combination

Figures 98, 144

Desmoris humilis Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 127, 128, 1894. Lectotype, here designated: Male, Kansas, MCZ 1890 (Dietz collection).

Description: Rostra of both sexes piceous, closely punctate and squamose behind antennal insertions; stouter, slightly curved, sparsely punctate before antennal insertions, smooth median line present only near base in the male; very smooth, shining before antennal insertions, smooth median line complete in female. Head black, finely alutaceous, very sparsely squamose. Prothorax piceous to black, moderately rounded at sides, moderately narrowed behind apex; disk closely but not coarsely punctate, no smooth median line present; scales small, ovate, yellowish white, rather sparse toward center of disk; prosternum shallowly emarginate, transversely impressed.

Elytra piceous, intervals covered with scales similar in size, shape, and color to those of prothorax. Underside of prothorax and abdomen covered with yellowish white rounded scales. Femora rufous, moderately clavate, covered with elongate-ovate yellowish white scales. Tibiae rufous, thinly covered with whitish linear scales. Tarsi rufous, claws connate near the base, moderately divergent. Median lobe of male genitalia rather rounded at apex; the internal sac extending almost to anterior end of median lobe and having a pebbly appearance (fig. 98). Stem of the spiculum ventrale of the female genitalia not expanded at the anterior end (fig. 144).

Measurements: The following measurements were taken from 5 males and 1 female from Lake Okoboji, Iowa (USNM), 1 female from

Iowa City, Iowa (USNM), 2 males and 2 females from Silver Lake, Iowa (USNM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 57	2. 40–2. 90	2. 40	2. 00–2. 60
Elytra length	1. 74	1. 60–1. 90	1. 60	1. 40–1. 80
Elytra width at base	1. 00	0. 96–1. 15	0. 93	0. 79–1. 03
Prothorax length	0. 66	0. 56–0. 79	0. 59	0. 49–0. 66
Prothorax width	0. 76	0. 69–0. 86	0. 62	0. 56–0. 73
Rostrum length	0. 94	0. 79–0. 106	1. 18	1. 03–1. 25
Rostrum length before antennal insertion	0. 39	0. 30–0. 43	0. 67	0. 56–0. 73
Funicular segment 2 length	0. 092	0. 085–0. 102	0. 084	0. 065–0. 119
Funicular segment 3 length	0. 054	0. 051–0. 068	0. 046	0. 034–0. 051

BIOLOGY: At present, one host record is available for this species: "host, *Grindelia*," Rutland, Saskatchewan, Aug. 2 (CNC).

DISCUSSION: This species resembles *S. sordidus* LeConte in general body-shape and proportions, color and arrangement of scales and prothoracic punctation, but *S. sordidus* is larger, has a clearly defined smooth, median line on the prothorax, and has a longer female rostrum than does *S. humilis*. In addition, the apex of the median lobe of the male genitalia is more angular at the sides in *S. sordidus* than in *S. humilis*, and the internal sac is much shorter than in *S. humilis*.

DISTRIBUTION: Present records indicate that this species may be found in the central portion of the interior plains region. The following specimens were examined:

ILLINOIS: COOK CO.: no data (CNHM).
INDIANA: LAKE CO.: Hessville, May 30 (CNHM).
IOWA: DELAWARE CO.: Silver Lake (USNM). DICKINSON CO.: Lake Okoboji, July 17 and 28, Aug. 28 (USNM). JOHNSON CO.: Iowa City (USNM).
MANITOBA: Reston, Aug. 2 (CNC).
SASKATCHEWAN: Pipe Lake, Aug. 10, Rutland, Aug. 2 (CNC).
Total specimens examined: 31.

Smicronyx compar (Dietz), new combination

FIGURES 99, 145

Desmoris compar Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 123, 1894. Type: Female [Illinois], CM (Ulke collection).

DESCRIPTION: Rostrum black, piceous at tip, slightly arcuate in both sexes, smooth and shining before antennal insertions, coarsely punctate and squamose behind antennal insertions in female; punctate and slightly squamose before antennal insertions in male. Head black, finely alutaceous, front densely squamose. Prothorax black, broadly rounded at sides, strongly narrowed and slightly constricted near apex; disk coarsely and closely punctate, thinly covered with

elongate-ovate ochreous scales which are oriented toward the midline from sides and base.

Elytra piceous, moderately convex, covered with a mixture of ochreous and light yellow, ovate scales, the light yellow scales forming irregular interrupted transverse bands which give the elytra a rather mottled appearance. Scales of venter of the thorax and abdomen broader and more rounded than those of the dorsum, varying in color from very pale yellow to deep yellow. Femora reddish brown, covered with small elongate-oval yellow scales. Tibiae reddish brown, bearing rows of elongate-oval scales; moderately expanded near apex, particularly in the hind pair. Fourth tarsal segment fairly elongate, the claws moderately divergent. Median lobe of the male genitalia quite elongate, the internal sac rather granular on outer surface (fig. 99). Arms of the spiculum ventrale of female genitalia forming a rather narrow V; apex of the stem only slightly expanded (fig. 145).

Measurements: The following measurements were taken from 2 males and 1 female from Palos Park, Ill. (CNHM), 2 females from Summit, Ill. (CNHM), 1 male and 2 females from Willow Springs, Ill. (CNHM), 2 males from Dickinson Co., Iowa (USNM), 1 male from Pottawatomie Co., Iowa (USNM), and 1 female from West Quincy, Mo. (CNHM). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 93	3. 10–4. 30	3. 90	3. 40–4. 60
Elytra length	2. 63	2. 10–2. 90	2. 52	2. 30–3. 00
Elytra width at base	1. 68	1. 40–1. 80	1. 66	1. 50–2. 00
Prothorax length	1. 16	0. 90–1. 30	1. 17	1. 05–1. 40
Prothorax width	1. 30	1. 00–1. 40	1. 34	1. 20–1. 60
Rostrum length	1. 43	1. 20–1. 70	1. 72	1. 50–2. 10
Rostrum length before antennal insertion	0. 53	0. 40–0. 70	0. 86	0. 80–1. 10
Funicular segment 2 length	0. 119	0. 102–0. 125	0. 119	0. 102–0. 135
Funicular segment 3 length	0. 068	0. 058–0. 085	0. 068	0. 058–0. 085

Biology: There is no biological information available on this species at present.

Discussion: This species resembles *S. fulvus* LeConte and *S. sordidus* LeConte in general body shape and proportions, prothoracic punctation, and in having a rather straight rostrum, but may be distinguished from *S. fulvus* by the mottled appearance of the elytra (as noted in the key on p. 333) and from *S. sordidus* by the ochreous and light yellow scales (as opposed to white or gray scales in *S. sordidus*).

Blatchley and Leng (1916) considered *S. compar* to be the female of *S. scapalis* LeConte, but, as indicated in the discussion of *S. scapalis*, it is quite clear that this is not the case now that both sexes of the two species are known.

DISTRIBUTION: Existing records indicate that this species is fairly widely distributed in the central lowlands province of the interior plains. The following specimens were examined:

ILLINOIS: COOK CO.: Palos Park, June 19, 25, July 10 (CNHM); Summit, June 11 (CNHM); Willow Springs, July 27 (CNHM).
IOWA: DICKINSON CO.: June 24 (USNM). POTTAWATOMIE CO.: July 30 (USNM).
MISSOURI: HICKORY CO.: West Quincy, Aug. 18 (CNHM).
Total specimens examined: 13.

***Smicronyx floridanus* (Dietz), new combination**

Desmoris floridanus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 126, 1894. Lectotype, here designated: Male, Florida, CM (Ulke collection).

DESCRIPTION: Rostrum of male black, moderately stout; sparsely punctate and slightly carinate before antennal insertions; squamose and coarsely punctate behind antennal insertions. Head finely alutaceous, sparsely squamose in front. Prothorax broadly rounded at sides, moderately narrowed toward apex; surface black, shining, closely and deeply punctate, smooth median line distinct only near middle of disk; scales oval, very pale gray, sparse toward middle of the disk; prosternum shallowly emarginate, slightly impressed transversely.

Elytra black, intervals thinly covered with oval, light gray scales, among which are a few light tan scales. Underside of thorax and abdomen covered with broadly oval light gray scales. Femora piceous, strongly clavate, thinly covered with elongate light gray scales. Tibiae piceous, thinly covered with scales similar to those of the femora; first and second pair slightly dilated at apices, third pair more noticeably dilated. Tarsi piceous, fourth segment extending only moderately beyond third; claws connate only near their base, moderately divergent.

MEASUREMENTS: The following measurements were taken from the lectotype (a male) and a male from "Fla." (Ulke collection, CM). All measurements are in millimeters:

	Males	
	Mean	*Extremes*
Body length	3. 40	3. 30–3. 50
Elytra length	2. 20	
Elytra width at base	1. 45	1. 40–1. 50
Prothorax length	1. 00	
Prothorax width	1. 15	1. 10–1. 20
Rostrum length	1. 20	
Rostrum length before antennal insertion	0. 45	0. 40–0. 50
Funicular segment 2 length	0. 085	
Funicular segment 3 length	0. 051	

Biology: There is no information available on the biology of this species.

Discussion: It is unfortunate that there are only three specimens of *S. floridanus* available for study, particularly in regard to the genitalia, but since the available material does not closely resemble any other species, the name is allowed to stand at this time. To some extent, this species resembles *S. compar* Dietz in regard to general body shape, color, and prothoracic punctation. However, the scales of the dorsum are a mixture of white and light tan in *S. floridanus*, as opposed to various shades of yellow in *S. compar*, and the rostrum of the male of *S. floridanus* is distinctly carinate before the antennal insertions, which is not true of *S. compar*.

Distribution: From the type locality (Florida) and a single specimen in the Dietz collection marked "Geo.," it is evident that *S. floridanus* must exist at various points in Florida and Georgia, but more specific information is lacking.

Smicronyx incertus (Dietz) new combination

Figures 100, 146

Desmoris incertus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 125, 126, 1894. Lectotype, here designated: Female, Kansas, MCZ 1888 (Dietz collection).

Smicronyx rusticus Dietz, Trans. Amer. Ent. Soc., vol. 21, pp. 171, 172, 1894. New synonymy. Type: Male, Montana, Academy of Natural Sciences of Philadelphia 2926 (Horn collection).

Smicronyx vitiosus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 167, 1894. New synonymy. Type: Male, "Walnut, Ariz.," June 9, collected by Wickham, MCZ 1916 (Dietz collection).

Description: Rostra of both sexes reddish brown, slightly curved; roughly punctate and squamose behind antennal insertions, closely punctate before antennal insertions in male; less roughly punctate behind antennal insertions, very smooth and shining before antennal insertions in female. Head reddish brown, finely alutaceous and sparsely punctate. Antennae reddish brown, second funicular segment subequal to first. Prothorax dark reddish brown, moderately rounded at sides, moderately narrowed and slightly constricted toward apex; disk closely and coarsely punctate, a trace of a smooth median line near apex; scales elongate-oval, pale luteus to white; prosternum shallowly emarginate, transversely impressed.

Elytra reddish brown; intervals covered with scales similar to those of the prothorax. Underside of thorax and abdomen covered with broadly ovate, white scales. Femora reddish brown, moderately clavate, covered with elongate-ovate yellowish white scales. Tibiae reddish brown, thinly covered with elongate yellowish white scales. Tarsi piceous to reddish brown; fourth segment extending well beyond

the third; claws connate for less than half their length, subparallel. Internal sac of the male genitalia extending for more than half the length of the median lobe and having a rather granular appearance (fig. 100). Stem of spiculum ventrale of female genitalia not dilated at the anterior end (fig. 146).

MEASUREMENTS: The following measurements were taken from 1 male from Rago, Kans. (USNM), 1 male from Pittsburgh, Pa. (CM), 2 females from Colorado Springs, Colo. (USNM), 2 males and 2 females from Onah, Manitoba (CNC). All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	3. 20	2. 70–3. 50	3. 02	2. 90–3. 20
Elytra length	2. 27	1. 90–2. 50	2. 12	2. 00–2. 20
Elytra width at base	1. 26	1. 03–1. 35	1. 21	1. 15–1. 32
Prothorax length	0. 77	0. 66–0. 89	0. 72	0. 69–0. 79
Prothorax width	0. 84	0. 76–0. 96	0. 90	0. 83–0. 96
Rostrum length	1. 26	1. 22–1. 32	1. 75	1. 65–1. 82
Rostrum length before antennal insertion	0. 52	0. 49–0. 59	1. 08	1. 00–1. 15
Funicular segment 2 length	0. 097	0. 085–0. 102	0. 148	0. 136–0. 170
Funicular segment 3 length	0. 068		0. 076	0. 068–0. 085

BIOLOGY: The only information on the biology of this species consists of the following records of host plants: "On *Helianthus* flowers," Clarendon, Tex., Aug. 29 (B. D. Valentine collection); "*Helianthus tuberosa*," Blackjack, Mo., Aug. 9 and 19 (USNM).

DISCUSSION: This species, while sharing the general characteristics of the *S. fulvus* group, does not seem to resemble any of the other species in the group so closely that it cannot be distinguished from them by the characters given in the key on p. 333.

The type specimens of *S. rusticus* Dietz and *S. vitiosus* Dietz, both of which were described from single male specimens, compare so closely with male specimens of *S. incertus* the writer is inclined to doubt that all the specimens in question represent more than one species. Therefore, the names *Smicronyx rusticus* Dietz and *Smicronyx vitiosus* Dietz have been placed in synonymy with *Smicronyx incertus* (Dietz).

DISTRIBUTION: Records taken from the material examined indicate that *S. incertus* has a very wide distribution in the interior plains region and has been found in some localities (not necessarily at low altitudes) in the southern Rocky Mountains and in the more southern portion of the basin and range province. The following specimens were examined:

ARIZONA: COCONINO CO.: Walnut (USNM).
COLORADO: EL PASO CO.: Colorado Springs, 6,000–7,000 ft. (USNM).
KANSAS: KINGMAN CO.: Rago (USNM).
MANITOBA: Onah, July 22–24 (CNC).

MISSOURI: ST. LOUIS CO.: Blackjack, Aug. 9 and 19 (USNM).
TEXAS: DONLEY CO.: Clarendon, Aug. 29 (B. D. Valentine).
Total specimens examined: 8.

Smicronyx rectirostris Blatchley

FIGURES 101, 147

Smicronyx rectirostris Blatchley, Journ. New York Ent. Soc., vol. 30, p. 101, 1922. Lectotype, here designated: Male, Gainesville, Florida, Aug. 27, 1918, collected by W. S. Blatchley, Purdue University (W. S. Blatchley collection).

DESCRIPTION: Rostra of both sexes piceous, almost straight; squamose behind antennal insertions; roughly punctate behind antennal insertions, sparsely so before antennal insertions in male; finely punctate behind antennal insertions, very smooth and polished before antennal insertions in female. Head piceous, finely alutaceous. Antennae piceous, club glabrous at base. Prothorax black to piceous, moderately rounded on sides, moderately narrowed and slightly constricted toward apex; closely punctate, some punctures confluent; scales elongate-ovate, yellowish white; prosternum moderately emarginate, slightly impressed transversely.

Elytra piceous, thinly covered with small elliptical yellowish to white scales. Underside of thorax and abdomen covered with small, ovate white scales. Femora ferruginous, moderately clavate, covered with elongate white scales. Tibiae ferruginous, covered with elongate white scales. Tarsi ferruginous, fourth segment extending only a little beyond the third; claws small, connate for about one-third their length, slightly divergent. Median lobe of male genitalia slightly narrowed toward apex. Stem of the spiculum ventrale of female genitalia not dilated at anterior end (fig. 147).

MEASUREMENTS: The following measurements were taken from 6 males and 5 females from Bergen Beach, Long Island, N.Y., and 3 males and 3 females from Bay Head, N.J. All measurements are in millimeters:

	Males		*Females*	
	Mean	*Extremes*	*Mean*	*Extremes*
Body length	2. 54	2. 50–3. 00	2. 82	2. 60–3. 30
Elytra length	1. 80	1. 70–2. 00	1. 85	1. 70–2. 20
Elytra width at base	1. 09	1. 00–1. 22	1. 14	1. 09–1. 32
Prothorax length	0. 72	0. 66–0. 83	0. 78	0. 73–0. 86
Prothorax width	0. 79	0. 73–0. 89	0. 86	0. 83–0. 89
Rostrum length	1. 02	0. 96–1. 12	1. 40	1. 32–1. 68
Rostrum length before antennal insertion.	0. 39	0. 36–0. 43	0. 81	0. 73–1. 06
Funicular segment 2 length	0. 103	0. 102–0. 119	0. 108	0. 102–0. 119
Funicular segment 3 length	0. 054	0. 051–0. 068	0. 057	0. 051–0. 068

BIOLOGY: The only biological information available on this species is a single record of a host plant: "In buds *Bidens*," Bergen Beach, Long Island, N.Y. (12 specimens taken, USNM).

DISCUSSION: Although *S. rectirostris* was originally known only from the type locality in Florida, the specimens from New Jersey, Long Island, and Massachusetts compare closely in all external details with the specimens in the type series in the Blatchley collection. Possibly the range of this species will eventually be found to be continuous along the Atlantic Coast from Florida to the New England States.

S. rectirostris resembles *S. humilis* (Dietz) in size, color of scales, and in having a rather straight rostrum in the female, but the two species may be readily distinguished by the characters given in the key on p. 333, and by the faintly mottled elytra of *S. rectirostris*.

DISTRIBUTION: Present records indicate that *S. rectirostris* exists in the northern and southern portions of the Atlantic and Gulf coastal plain. There is one record (Mount Tom, Mass.) from the upper part of the Connecticut lowland section of the New England and Maritime province, and one record (Montclair, N.J.) from the Piedmont Plateau. The following specimens were examined:

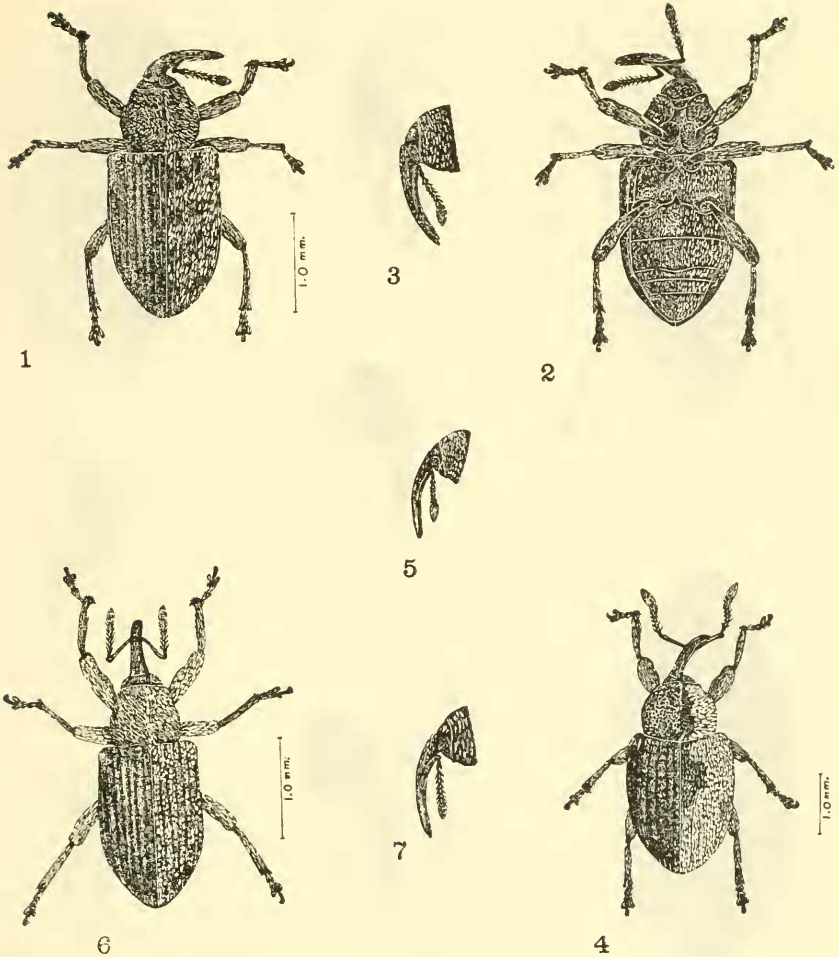
ALABAMA: BALDWIN CO.: Gulf Shores, Oct. 8 (B. D. Valentine).
MASSACHUSETTS: HAMPSHIRE CO.: Mount Tom, Aug. 17 (USNM).
NEW JERSEY: CAPE MAY CO.: Anglesea, July 7 (USNM). ESSEX CO.: Montclair (USNM). OCEAN CO.: Bay Head, Aug. 30 (USNM); Normandy Beach, Aug. (USNM).
NEW YORK: QUEENS CO.: Bergen Beach, July 15 (USNM).
Total specimens examined: 30.

Unrecognized Species

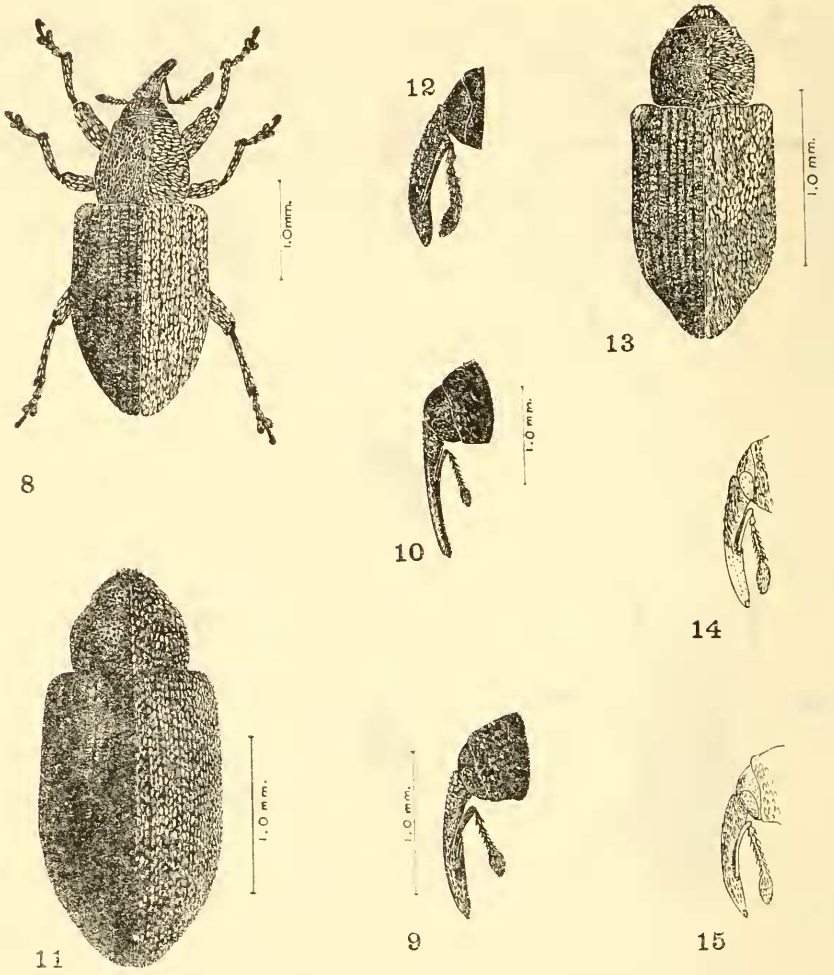
Smicronyx fraterculus Dietz

Smicronyx fraterculus Dietz, Trans. Amer. Ent. Soc., vol. 21, p. 151, 1894.

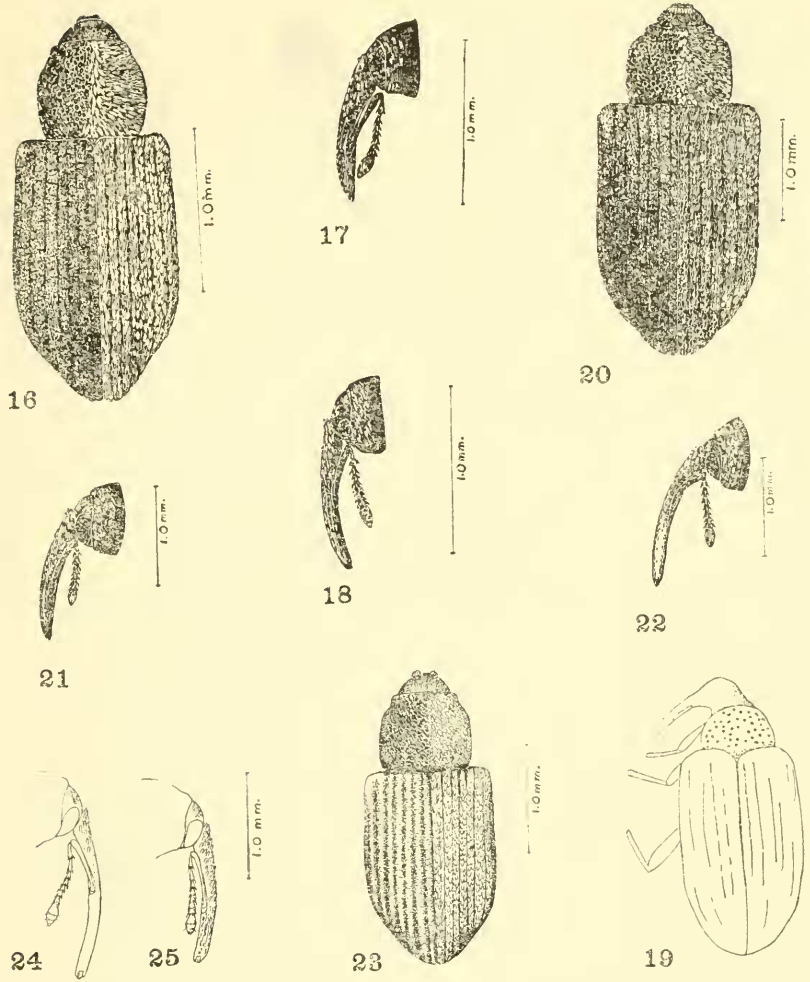
The single female specimen to which Dietz (1894) referred is missing from the Dietz collection at Harvard. The pin, locality label ("Ariz."), determination label, and type label are all present, but the specimen and the point on which it presumably was mounted are missing. Thus, the species is considered unrecognizable.



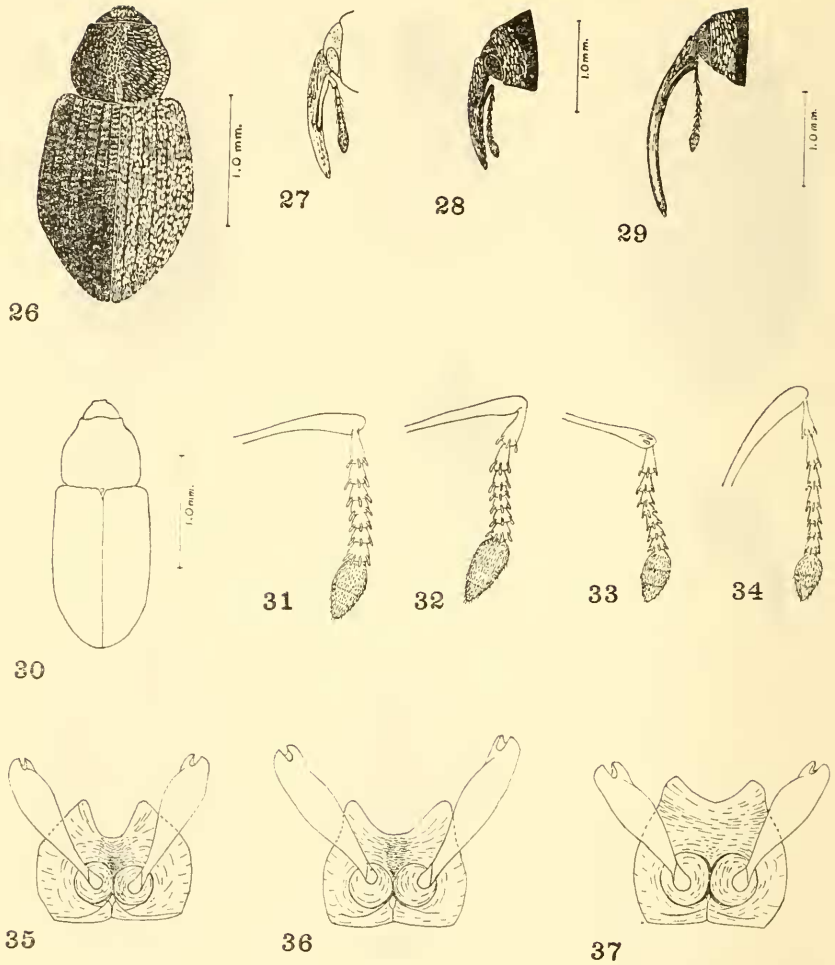
FIGURES 1–7.—1–3, *Smicronyx sculpticollis* Casey: 1, Male, dorsal view; 2, male, ventral view; 3, female, lateral view of head. 4–5, *S. discoideus* (LeConte): 4, Male, dorsal view; 5, female, lateral view of head. 6–7, *S. corniculatus* (Fahraeus): 6, Male, dorsal view; 7, female, lateral view of head.



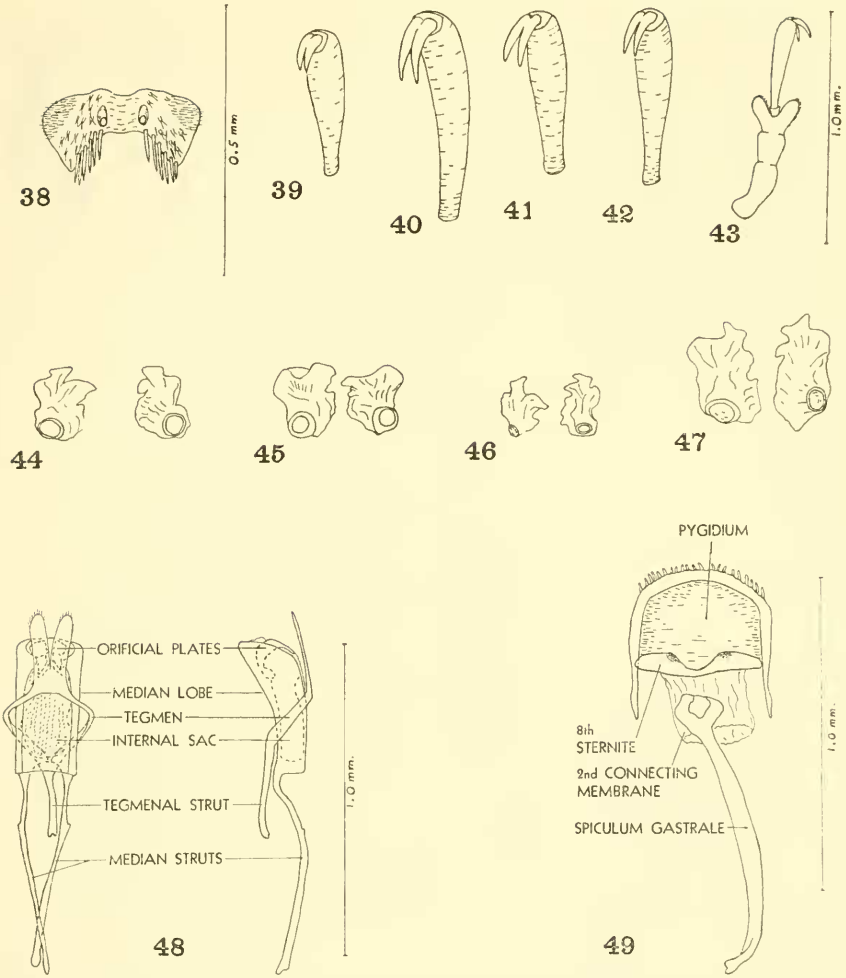
FIGURES 8–15.—8–10, *Smicronyx fulvus* LeConte: 8, Male, dorsal view; 9, male, lateral view of head; 10, female, lateral view of head. 11–12, *S. cinereus* Motschulsky: 11, Male, dorsal view; 12, male, lateral view of head. 13, *S. instabilis* Casey, male, dorsal view. 14–15, *S. instabilis* Casey: 14, Female, lateral view of head; 15, male, lateral view of head. (Figs. 11-12 were drawn by Miss F. A. McKittrick.)



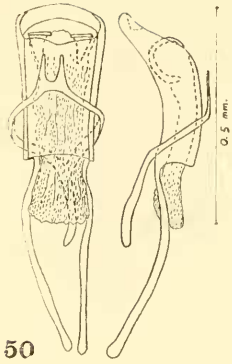
FIGURES 16–25.—16–18, *Smicronyx spretus* Dietz: 16, Male, dorsal view; 17, male, lateral view of head; 18, female, lateral view of head. 19, *S. antiquus* Förster (entire fossil), after Förster (1891). 20–22, *S. profusus* Casey: 20, Male, dorsal view; 21, male, lateral view of head; 22, female, lateral view of head. 23–25, *S. immaculatus*, new species: 23, Male, dorsal view; 24, female, lateral view of head; 25, male, lateral view of head.



FIGURES 26–37.—26–27, *Smicronyx ovipennis* LeConte: 26, Male, dorsal view; 27, female, lateral view of head. 28–29, *S. constrictus* (Say): 28, Male, lateral view of head; 29, female, lateral view of head. 30, *Promecotarsus densus* Casey, outline of body (dorsal view). 31–34, Antennae: 31, *Smicronyx sculpticollis* Casey; 32, *S. discoideus* (LeConte); 33, *S. corniculatus* (Fahraeus); 34, *S. constrictus* (Say). 35–37, Prothorax (ventral view): 35, *S. discoideus* (LeConte); 36, *S. corniculatus* (Fahraeus); 37, *S. fulvus* LeConte.



FIGURES 38–49.—38, Propygidium of male (dorsal view), *Smicronyx pusio* LeConte. 39–42, 4th tarsal segment, showing claws: 39, *S. sculpticollis* Casey; 40, *S. discoideus* (LeConte); 41, *S. corniculatus* (Fahraeus); 42, *S. fulvus* LeConte. 43, Tarsus of *Promecotarsus densus* Casey. 44–47, Mandibles (dorsal view): 44, *Smicronyx sculpticollis* Casey; 45, *S. discoideus* (LeConte); 46, *S. corniculatus* (Fahraeus); 47, *S. fulvus* LeConte. 48–49, Male genitalia, *S. lineolatus* Casey: 48, Median lobe and tegmen (parts labeled), dorsal and lateral view; 49, pygidium and spiculum gastrale (parts labeled), ventral view.



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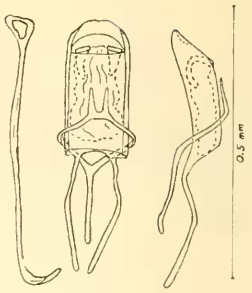

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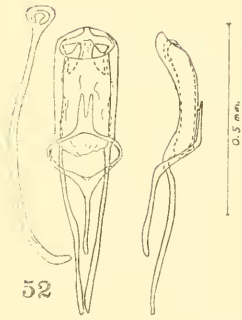

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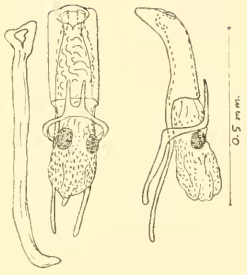

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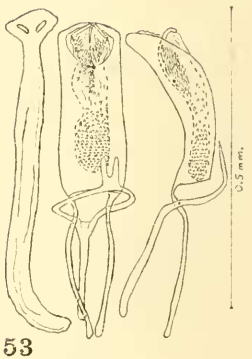

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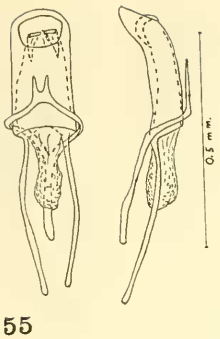
Figures 50–54.—Male genitalia, dorsal and lateral views: 50, *Smicronyx cinereus* Motschulsky, and spiculum gastrale labeled 50a; 51, *S. cuscutiflorae* Pierce; 52, *S. obscurus*, new species; 53, *S. tychoides* LeConte; 54, *S. sculpticollis* Casey.



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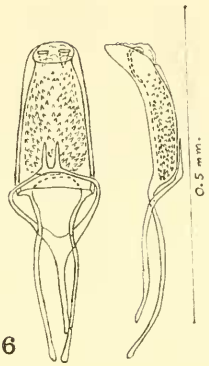

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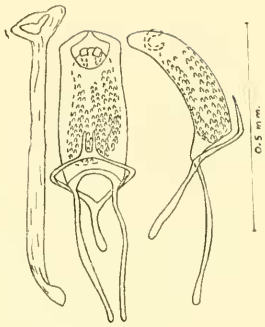

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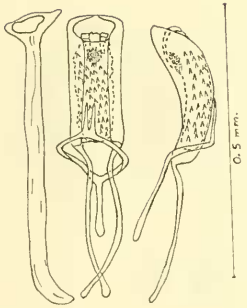

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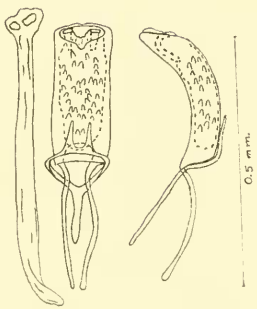

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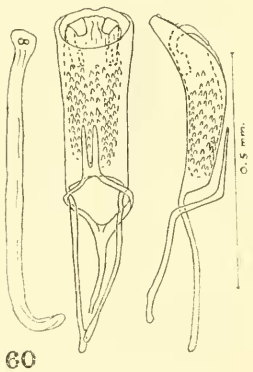

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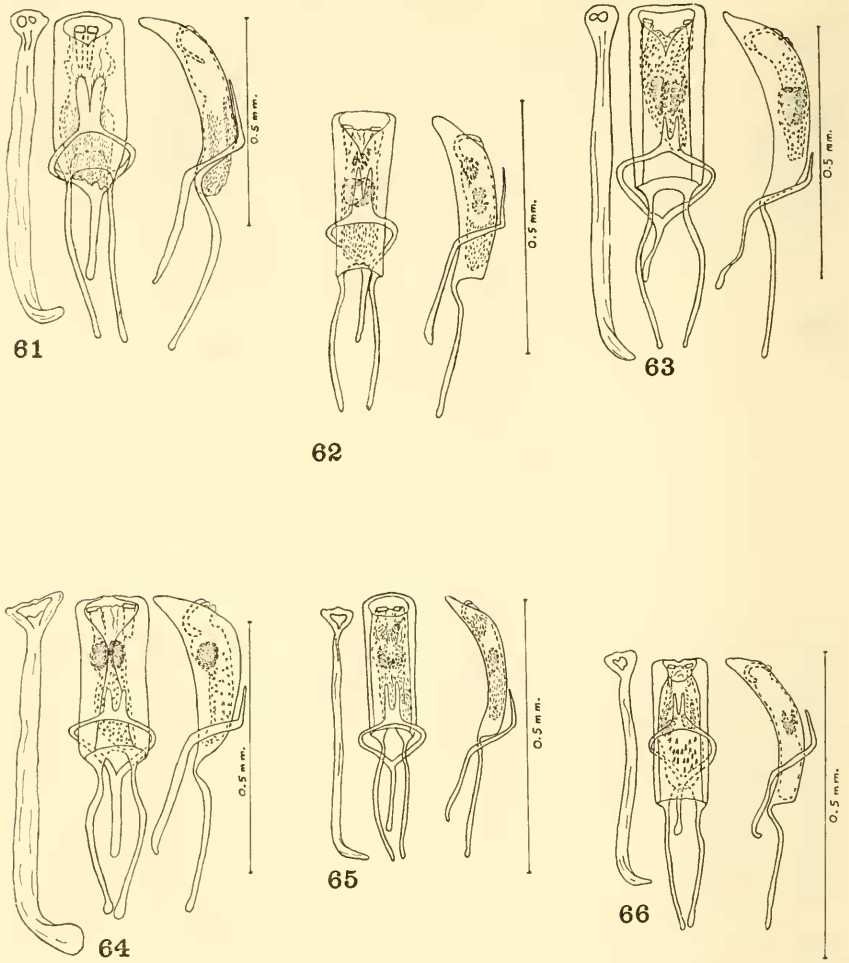
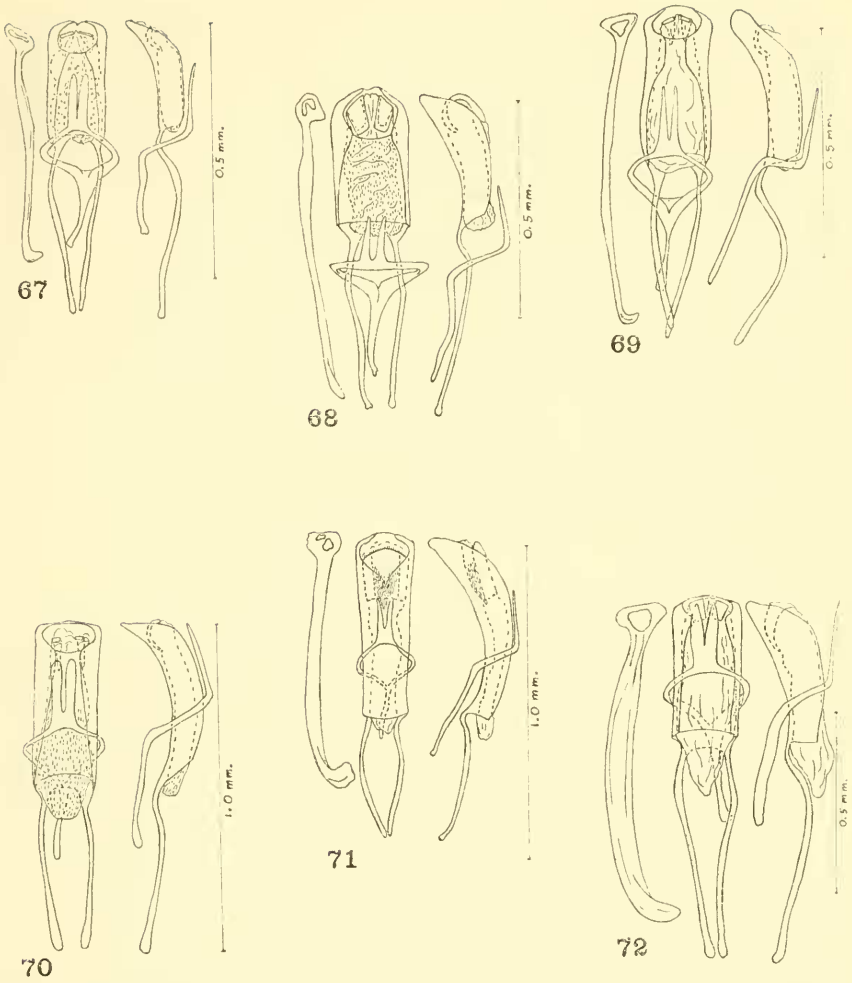
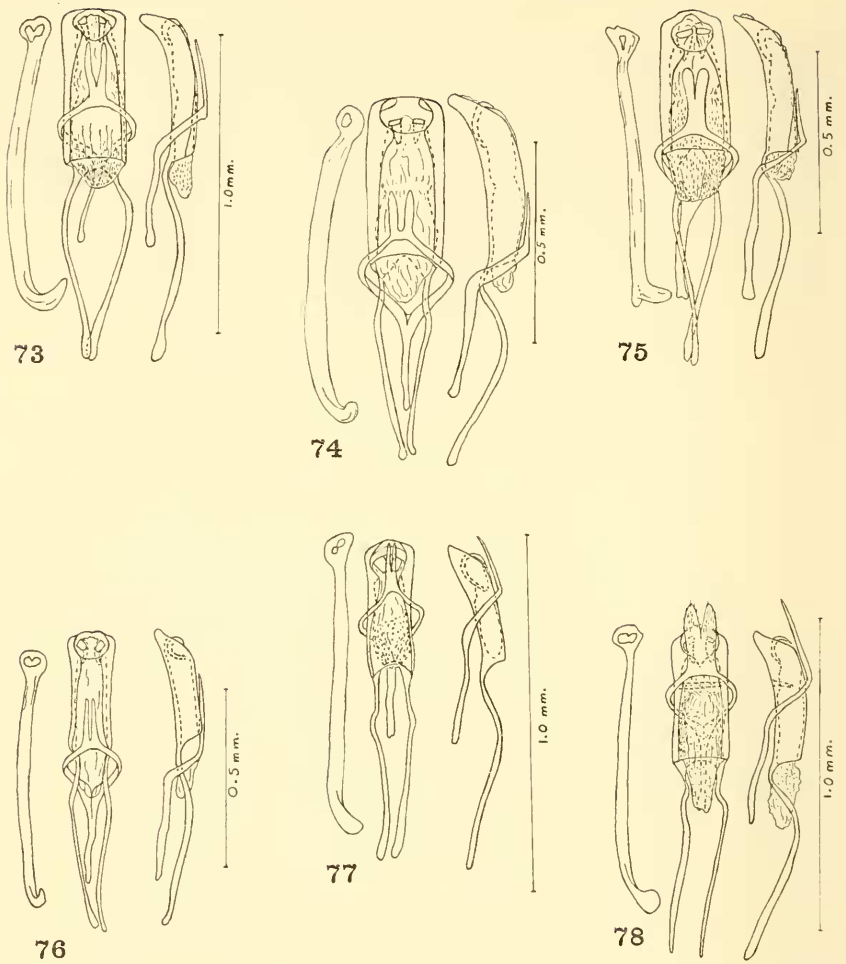
FIGURES 55–60.—Male genitalia, dorsal and lateral views: 55, *Smicronyx atratus* Dietz, spiculum gastrale not shown; 56, *S. interruptus* Blatchley, spiculum gastrale not shown; 57, *S. congestus* Casey; 58, *S. seriatus* LeConte; 59, *S. apionides* Casey; 60, *Smicronyx vestitus* LeConte.



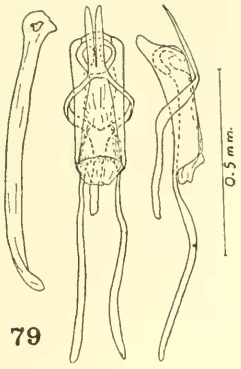
FIGURES 61–66.—Male genitalia, dorsal and lateral views: 61, *S. halophilus* Blatchley; 62, *S. defricans* Casey, spiculum gastrale not shown; 63, *S. posticus* Dietz; 64, *S. instabilis* Casey; 65, *S. silaceus* Casey; 66, *S. pusillus* Dietz.



FIGURES 67–72.—Male genitalia, dorsal and lateral views: 67, *Smicronyx lutulentus* Dietz; 68, *S. albonotatus*, new species; 69, *S. quadrifer* Casey; 70, *S. profusus* Casey, spiculum gastrale not shown; 71, *S. spretus* Dietz; 72, *S. amoenus* (Say).



FIGURES 73–78.—Male genitalia, dorsal and lateral views: 73, *Smicronyx discoideus* (LeConte); 74, *S. corpulentus* LeConte; 75, *S. centralis* (Dietz); 76, *S. corniculatus* (Fahraeus); 77, *S. californicus* Dietz; 78, *S. flavicans* LeConte.



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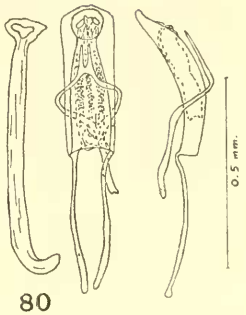

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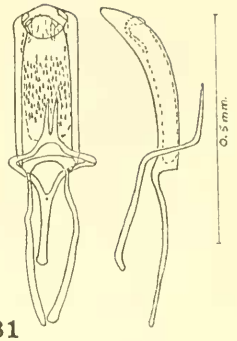

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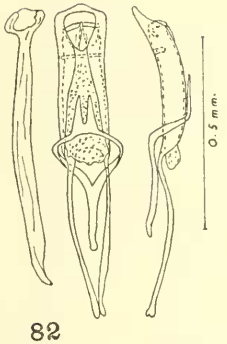

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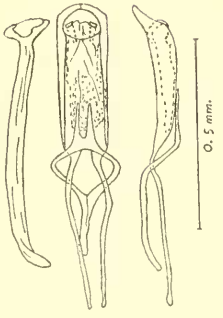

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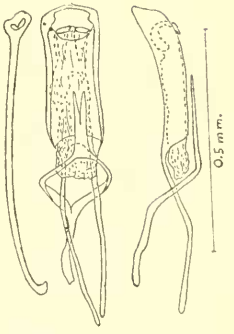

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FIGURES 79–84.—Male genitalia, dorsal and lateral views: 79, *Smicronyx immaculatus*, new species; 80, *S. commixtus* Dietz; 81, *S. utilis* Buchanan, spiculum gastrale not shown; 82, *S. obtectus* LeConte; 83, *S. albidosquamosus* Klima; 84, *S. imbricatus* Casey.

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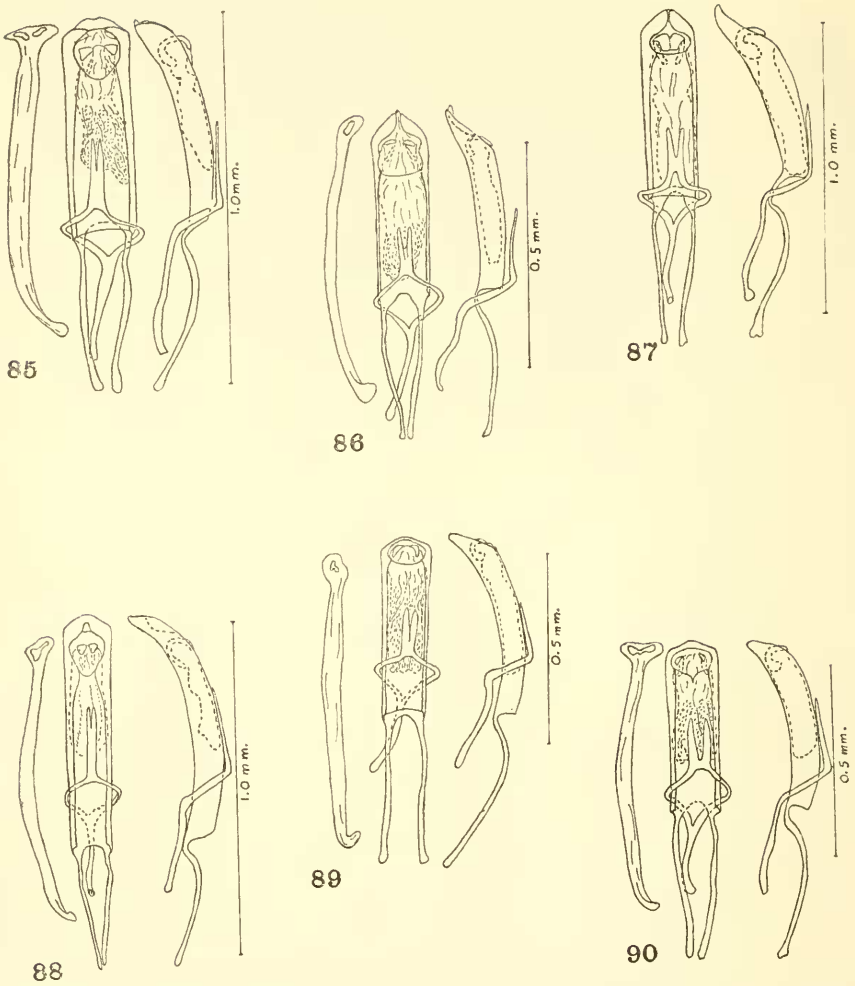
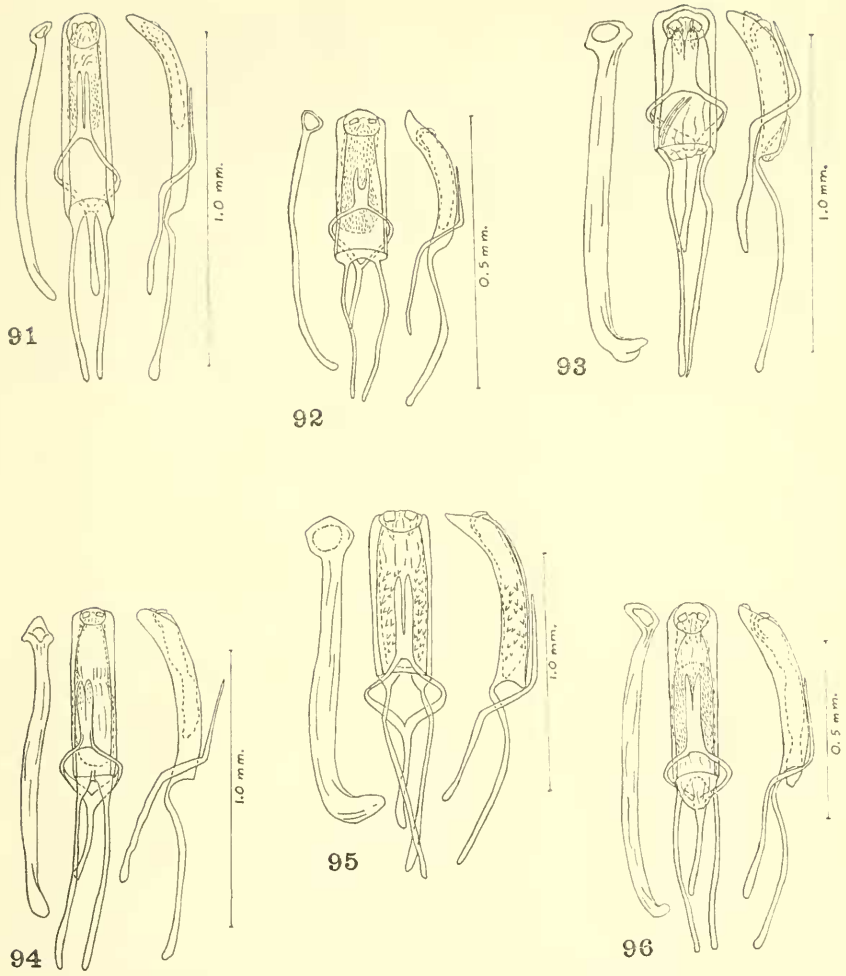
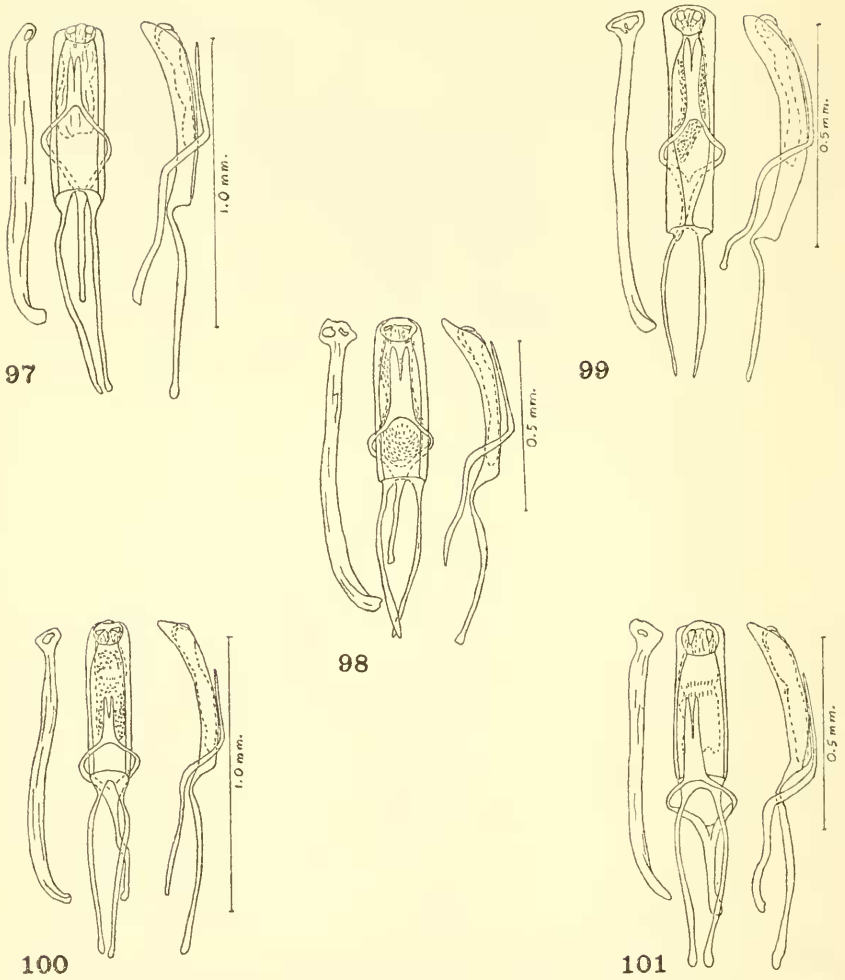


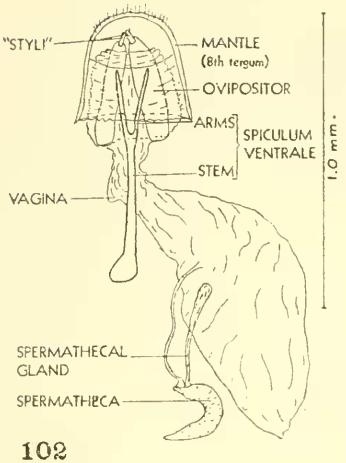
FIGURES 85–90.—Male genitalia, dorsal and lateral views: 85, *Smicronyx ovipennis* LeConte; 86, *S. tesselatus* Dietz; 87, *S. squalidus* Casey, spiculum gastrale not shown; 88, *S. abnormis* Dietz; 89, *S. griseus* LeConte; 90, *S. pleuralis* Casey.



FIGURES 91–96.—Male genitalia, dorsal and lateral views: 91, *Smicronyx resplendens* Dietz; 92, *S. pusio* LeConte; 93, *S. scapalis* (LeConte); 94, *S. constrictus* (Say); 95, *S. pinguis* Blatchley; 96, *S. fulvus* LeConte.



FIGURES 97–101.—Male genitalia, dorsal and lateral views: 97, *Smicronyx sordidus* LeConte; 98, *S. humilis* (Dietz); 99, *S. compar* (Dietz); 100, *S. incertus* (Dietz); 101, *S. rectirostris* Blatchley.



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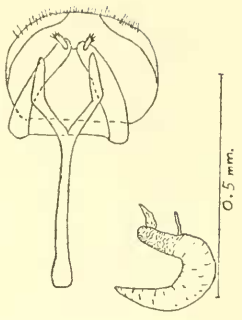

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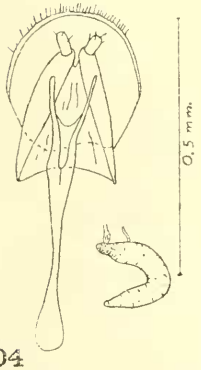

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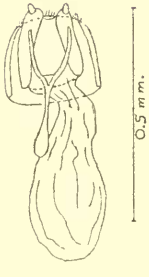

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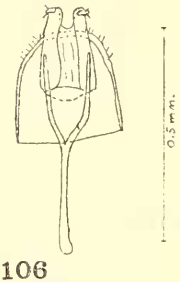

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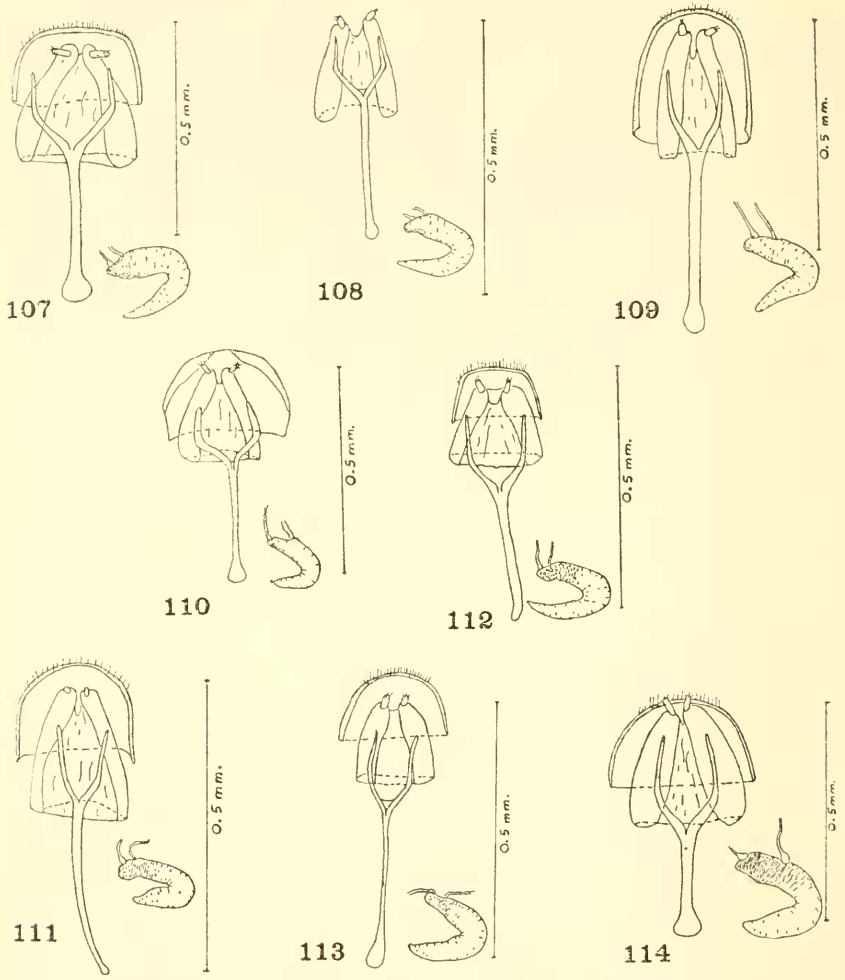
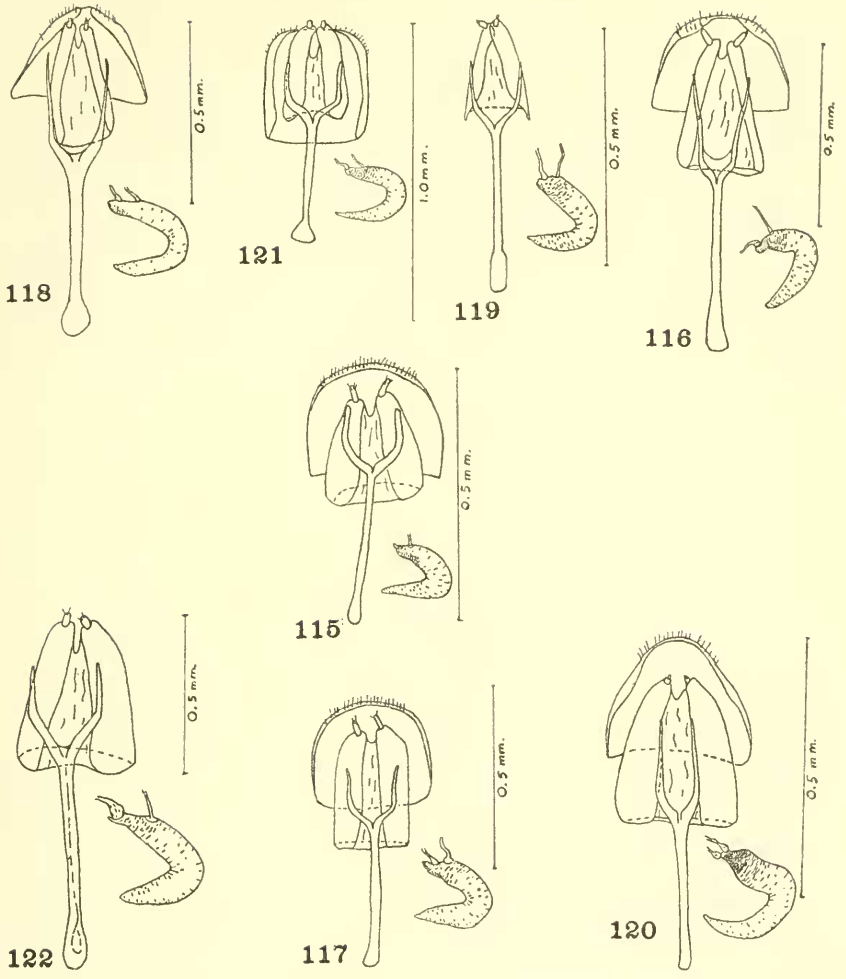
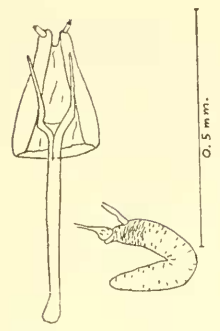
FIGURES 102–106.—Female genitalia, ventral view: 102, *Smicronyx squalidus* Casey, all parts shown and labeled; 103, *S. cinereus* Motschulsky; 104, *S. obscurus*, new species; 105, *S. sculpticollis* Casey; 106, *S. tychoides* LeConte, spermatheca not shown.



FIGURES 107–114.—Female genitalia, ventral view: 107, *Smicronyx atratus* Dietz; 108, *S. apionides* Casey, mantle not shown; 109, *S. congestus* Casey; 110, *S. halophilus* Blatchley; 111, *S. defricans* Casey; 112, *S. instabilis* Casey; 113, *S. lutulentus* Dietz; 114, *S. albonotatus*, new species.



FIGURES 115–122.—Female genitalia, ventral view: 115, *Smicronyx quadrifer* Casey; 116, *S. intricatus* Casey; 117, *S. lepidus* Dietz; 118, *S. profusus* Casey; 119, *S. spretus* Dietz, mantle not shown; 120, *S. amoenus* (Say); 121, *S. discoideus* (LeConte); 122, *S. corpulentus* LeConte, mantle not shown.



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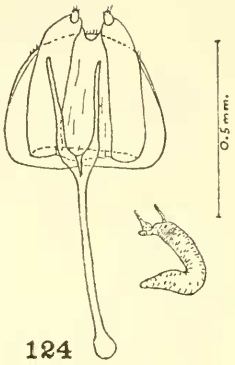

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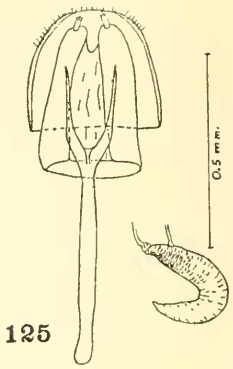

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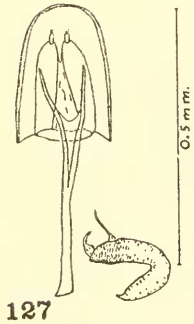

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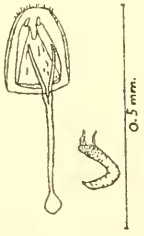

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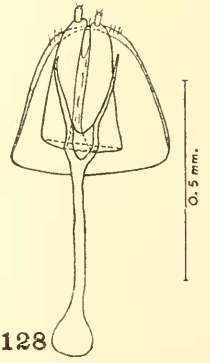
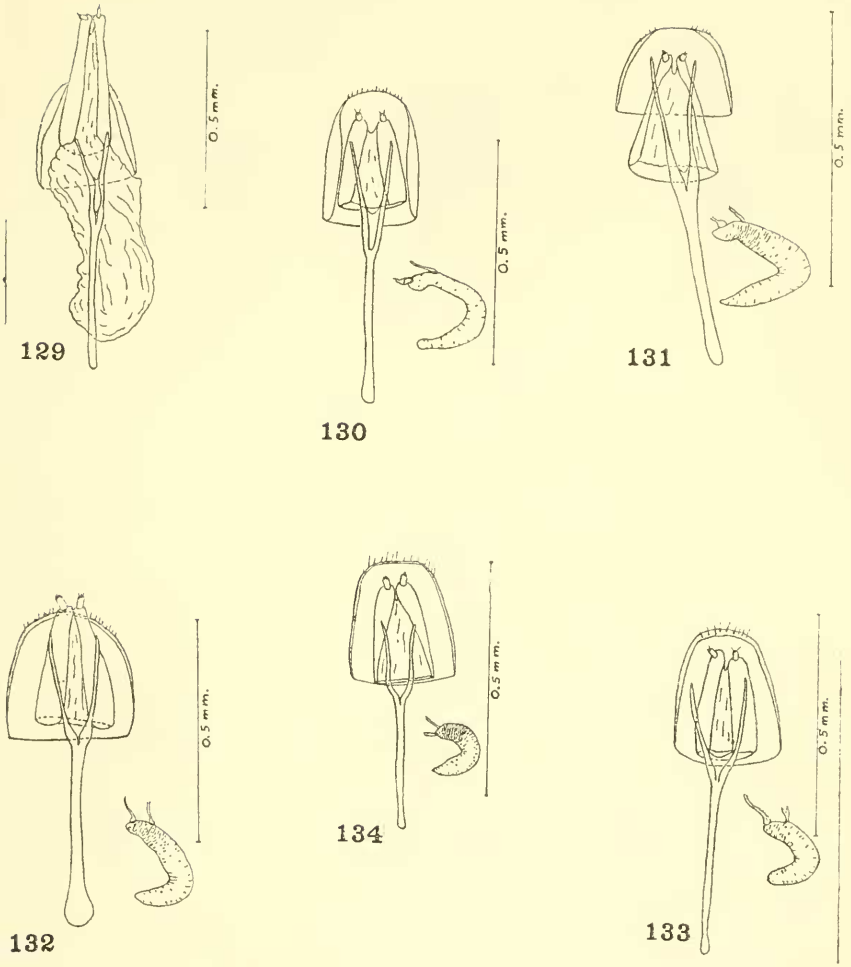
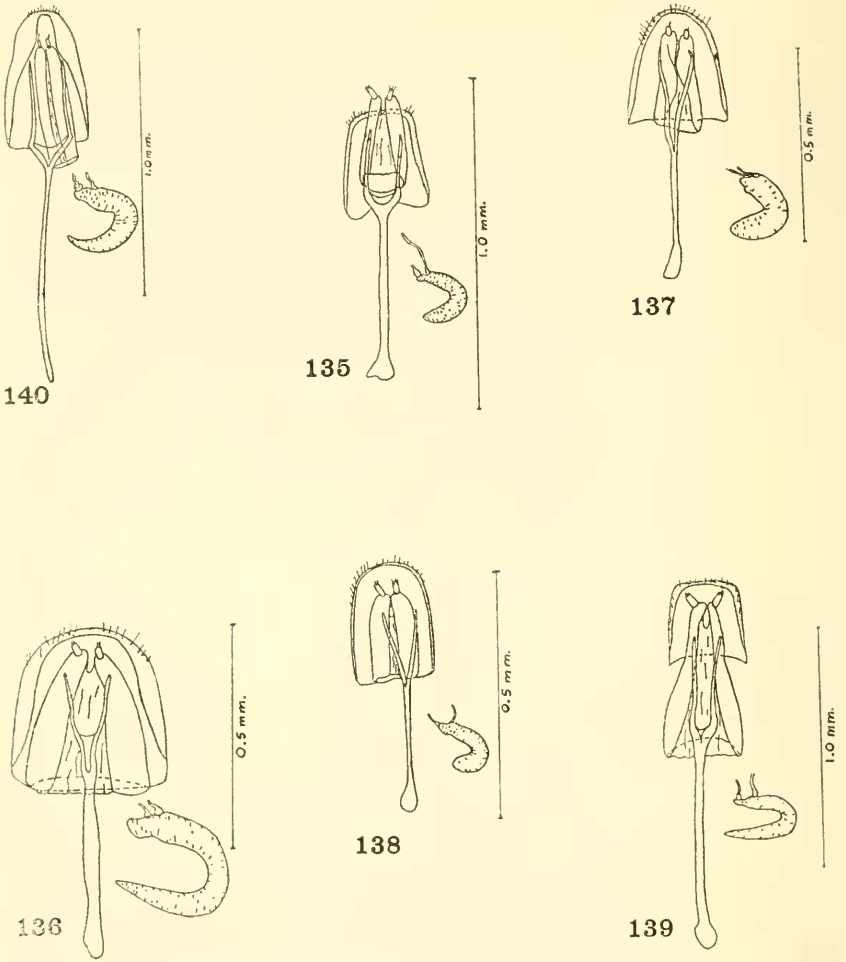


128

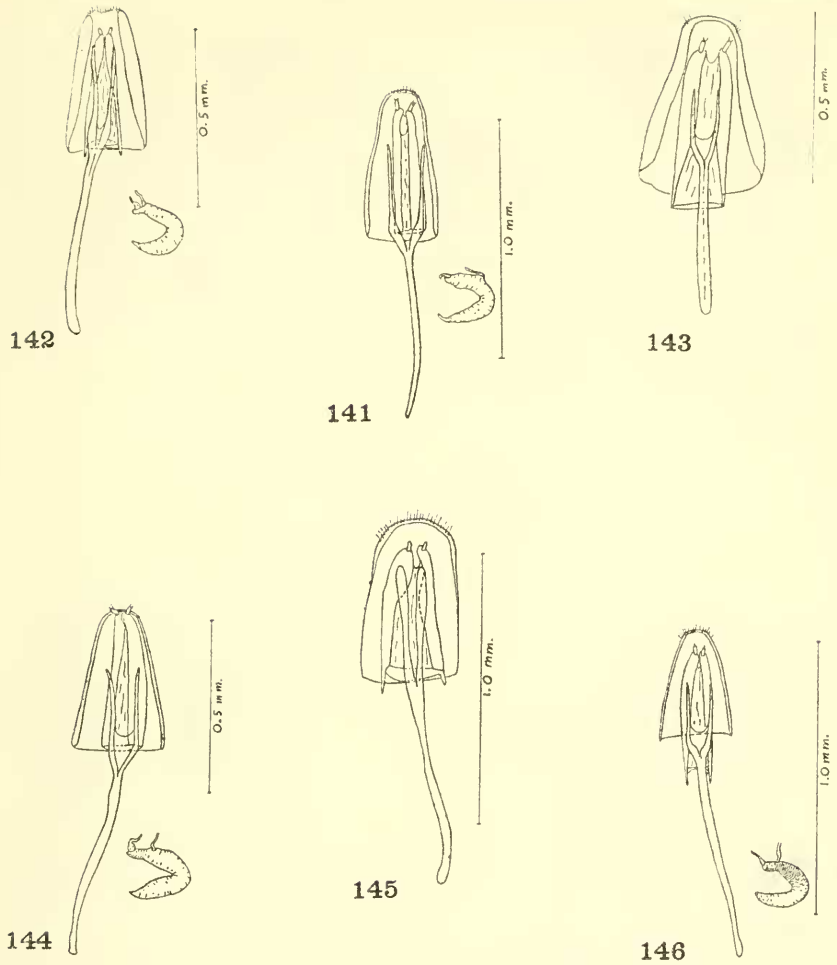
FIGURES 123–128.—Female genitalia, ventral view: 123, *Smicronyx centralis* (Dietz), mantle not shown; 124, *S. lineolatus* Casey; 125, *S. triangularis* (Dietz); 126, *S. corniculatus* (Fahraeus); 127, *S. californicus* Dietz; 128, *S. flavicans* LeConte, spermatheca not shown.



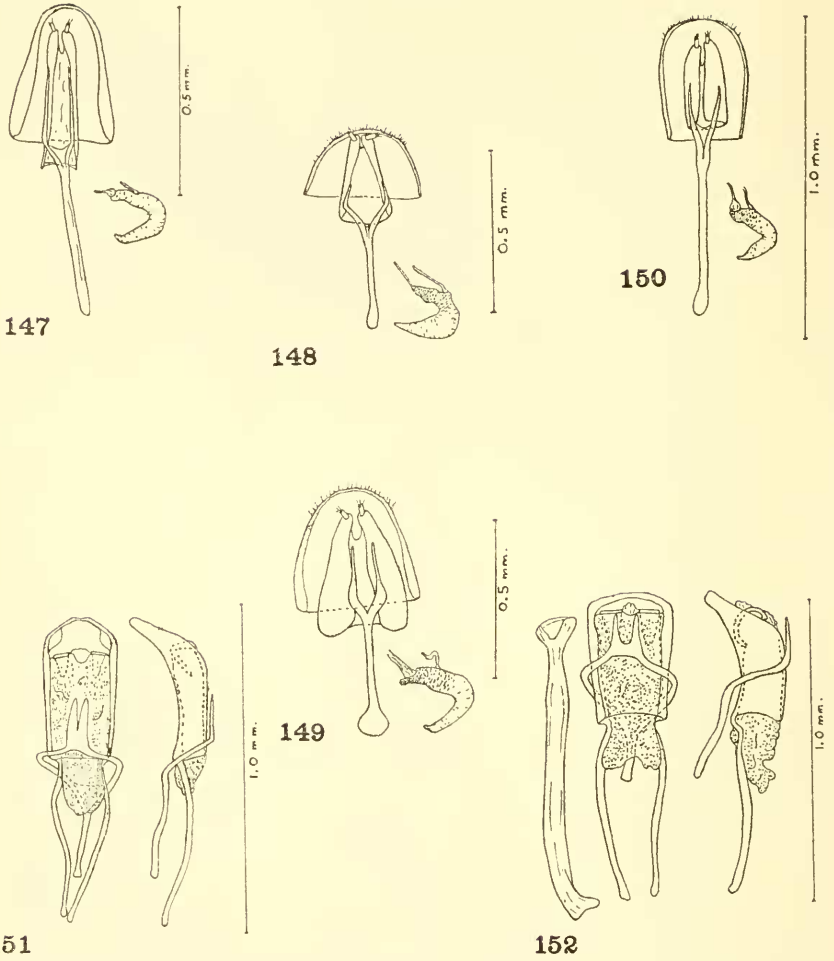
FIGURES 129–134.—Female genitalia, ventral view: 129, *Smicronyx immaculatus*, new species, spermatheca not shown; 130, *S. commixtus* Dietz; 131, *S. utilis* Buchanan; 132, *S. obtectus* LeConte; 133, *S. albidosquamosus* Klima; 134, *S. imbricatus* Casey.



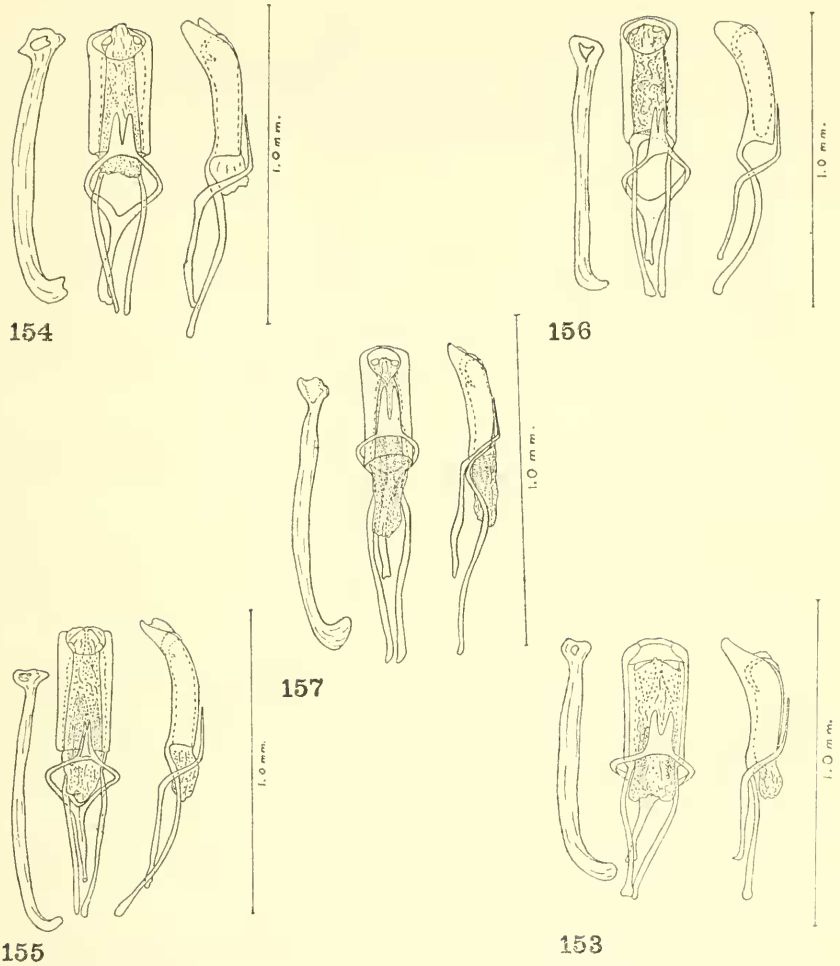
FIGURES 135–140.—Female genitalia, ventral view: 135, *Smicronyx griseus* LeConte; 136, *S. abnormis* Dietz; 137, *S. resplendens* Dietz; 138, *S. pusio* LeConte; 139, *S. scapalis* (LeConte); 140, *S. constrictus* (Say).



FIGURES 141–146.—Female genitalia, ventral view: 141, *Smicronyx pinguis* Blatchley; 142, *S. fulvus* LeConte; 143, *S. sordidus* LeConte, spermatheca not shown; 144, *S. humilis* (Dietz); 145, *S. compar* (Dietz), spermatheca not shown; 146, *S. incertus* (Dietz).



FIGURES 147–152.—147–150, Female genitalia, ventral view: 147, *Smicronyx rectirostris* Blatchley; 148, *S. pacificus*, new species; 149, *S. convexus*, new species; 150, *S. pallidus*, new species, 151–152, male genitalia, dorsal and lateral view: 151, *S. tardus* Dietz; 152, *S. mucidus* Dietz.



FIGURES 153–157.—Male genitalia, dorsal and ventral view: 153, *Smicronyx pacificus*, new species; 154, *S. convexus*, new species; 155, *S. intricatus* Casey; 156, *S. triangularis* (Dietz); 157, *S. pallidus*, new species.

Literature Cited

ANDREWS, HENRY NATHANIEL.
1955. Index of generic names of fossil plants 1820-1950, based on the compendium index of paleobotany of the U.S. Geological Survey, U.S. Geol. Survey Bull. 1013, 262 pp.

BARGAGLI, PIERO.
1883. Rassegna biologica di rincofori Europei, Firenze, Tipografica Cenniniana, 424 pp.

BISSEL, THEODORE L.
1937. Structure of the reproductive system of the pecan weevil. Ann. Ent. Soc. Amer., vol. 30, No. 2, pp. 242–256.

BLAIR, K. G.
1935. *Smicronyx reichi* Gyll., with notes on other species of the genus (Col.). Ent. Monthly Mag., vol. 71, pp. 127–130.

BLATCHLEY, W. S.
1920. Some new Rhynchophora from eastern North America with additions to and corrections of the Rhynchophora of eastern North America. Journ. New York Ent. Soc., vol. 28, pp. 161–178.
1922. Notes on the Rhynchophora of eastern North America, with characterizations of new genera and descriptions of new species. Journ. New York Ent. Soc., vol. 30, p. 101.
1928. Notes on the Rhynchophora of eastern North America with descriptions of new species, IV. Journ. New York Ent. Soc., vol. 36, pp. 235–262.

BLATCHLEY, W. S., and C. W. LENG.
1916. Rhynchophora or weevils of northeastern America, Indianapolis, Nature Publishing Co., 682 pp.

BOISDUVAL, JEAN ALPHONSE.
1835. Voyage de découvertes l'*Astrolabe* . . . Faune entomologique . . . , deuxième Partie, Paris, J. Tastu, p. 188.

BRUHN, A. F.
1947. The external male genitalia of some Rhynchophora. Great Basin Nat., vol. 8, parts 1–4, pp. 1–35, 5 pls.

BUCHANAN, L. L.
1941. A new species of *Smicronyx* from Saskatchewan, and synonymical notes (Coleoptera, Curculionidae). Proc. Ent. Soc. Washington, vol. 43, pp. 29–32, 1 pl.

CASEY, THOS. L.
1892. Coleopterological notices. IV. Ann. New York Acad. Sci., vol. 6, pp. 359–712.

CHAMPION, G. C.
1902. Biologia Centrali-Americana, Insecta, Coleoptera, vol. 4, pt. 4, pp. 129-132.

DESBROCHERS DES LOGES, J.
1896. Éspeces inedites de Curculioides (VI). Frelon, vol. 5, pp. 168–182.

DIETZ, W. G.
1894. Revision of the genera and species of Desmori of North America. Trans. Amer. Ent. Soc., vol. 21, pp. 113-178, 2 pls.

FERNALD, MERRITT LYNDON.
1950. Gray's manual of botany, 8th ed., New York, American Book Co., lxiii + 1632 pp.

FÖRSTER, B.
1891. Die insekten des "plattigen steinmergels" von Brunstatt. Abh. Geol. Spez. Elsass-Lothringen, vol. 3, pp. 399-400.

GAERTNER, ERIKA E.
1950. Studies of seed germination, seed identification, and host relationships in dodders, *Cuscuta* spp. Cornell Univ. Exp. Station Memoir 294, Ithaca, N.Y., 56 pp.

HAMILTON, JOHN.
1886. Natural history notes on Coleoptera No. 2. Canadian Ent., vol. 18, No. 6, pp. 111–115.

HUSTACHE, A.
1930. Curculionidae Gallo-Rhenans (Cont.). Ann. Soc. Ent. France, vol. 99, pp. 81–272, 51 figs.
1935. Mission J. de Lepiney au Soudan Français (1933–1934) (trezieme note) Coléoptères Curculionides. Bull. Soc. Sci. Nat. Marocco, vol. 15, pp. 26–30.

KHAN, M. Q., and D. V. MURTHY.
1955. *Smicronyx albovariegatus* Faust (Curculionidae: Coleoptera) on *Striga* spp. Indian Journ. Ent., vol. 17, part 3, Dec. (pub. Mar. 1956), p. 362.

KISSINGER, D. G.
1955. New distribution and habitat records of N. A. Coleoptera. Col. Bull., vol. 9, No. 1, pp. 13–15.

KUSCHEL, G.
1949. Los Curculionidae del extreme norte de Chile (Coleoptera, Curcul. ap. 6). Acta Zool. Lilloana, vol. 8, pp.1–54, 3 pls.
1952. Los Curculionidae de la Cordillera Chilieno-Argentina (I[a] parte) (Aporte 13 de Coleoptera Curculionidae). Rev. Chilena Ent., vol. 2, pp. 229–279.

LAMOTTE, ROBERT S.
1952. Catalogue of the Cenozoic plants of North America through 1950, Geol. Soc. Amer. Memoir 51, 381 pp.

MARSHALL, G. A. K.
1923. On new species of Curculionidae from India. Ann. Mag. Nat. Hist., vol. 12, ser. 9, pp. 281–299.
1942. New injurious Curculionidae (Col.) from the Sudan. Bull. Ent. Res., vol. 33, pp. 1–3.

MARTELLI, G. M.
1933. Primo contributo alla conoscenza di alcuni parassiti dell'Orobanche della Fava (*Orobanche speciosa* D.C.). Boll. Lab. Zool. Portici, vol. 28, pp. 11–36, 14 figs.

PERICART, J.
1957. Contribution a l'etude du genre *Smicronyx* (subg. *Smicronyx* s. str.). Revision des especes Gallo-Rhenans et Corses (Col. Curculionidae). Ann. Soc. Ent. France, vol. 126, pp. 71–89, 18 figs.

PIERCE, W. D.
1907. On the biologies of the Rhynchophora of North America, Annual Report of Nebraska State Board of Agric., pp. 247–322, illus.
1939. The fauna and flora of the El Segundo sand dunes 6. The dodder and its insects. Bull. Southern California Acad. Sci., vol. 38, pp. 43–53, 2 figs.

REMPEL, J. G., and WM. SHEVKENEK.
1941. Notes on the morphology, life history, and economic importance of *Smicronyx utilis* Buchanan. (Coleoptera, Curculionidae). Canadian Ent., vol. 73, pp. 100–104, 1 pl.

SAY, THOMAS.
1823. Descriptions of coleopterous insects collected in the late expedition to the Rocky Mountains, performed by order of Mr. Calhoun, Secretary of War, under the command of Major Long. Journ. Acad. Nat. Sci. Philadelphia, vol. 3, pt. 1, pp. 139–216.
1831. Descriptions of North American species of Curculionides and an arrangement of some of our known species agreeably to the method of Schoenherr, New Harmony, Indiana, 30 pp.

SCHUCHERT, CHARLES, and CARL O. DUNBAR.
1941. Outlines of historical geology, 4th ed , New York, John Wiley and Sons, ix + 291 pp.

SCHWARZ, E. A.
1884. Notes on the food-habits of some N. American Rhynchophora. Bull. Brooklyn Ent. Soc., vol. 7, p. 84.

SCHWIZGEBEL, R. B., and D. A. WILBUR.
1942. Coleoptera associated with ironweed, *Vernonia interior* Small, in Kansas. Journ. Kansas Ent. Soc., vol. 15, pp. 37–44, 1 pl.

SCUDDER, S. H.
1893. Tertiary rhynchophorous Coleoptera of the United States, Monographs of the U.S. Geological Survey, vol. 21, 206 pp., 12 pls.

SLEEPER, ELBERT L.
1955. New Rhynchophora from western United States (Coleoptera, Curculionidae). Pan-Pacific Ent., vol. 31, No. 2, pp. 87–89.

SNEDECOR, GEORGE W.
1956. Statistical methods, 5th ed., Ames, Iowa, Iowa State Coll. Press, xii + 534 pp.

SOLARI, F.
1952. Quattro nuovi *Smicronyx* Europei e note critiche su acune altre specie del genre (Col. Curc.). Mem. Soc. Ent. Italiana, vol. 31, pp. 22–37.

TILDEN, JAMES W.
1951. The insect associates of *Baccharis pilularis* De Candolle. Microentomology, vol. 16, pp. 149–185.

TORRE-BUENO, J. R. DE LA.
1937. A glossary of entomology, Brooklyn, N.Y., Brooklyn Ent. Soc., ix + 336 pp., 9 pls.

TUTTLE, DONALD M.
1951. Studies in bionomics of Curculionidae, University of Illinois Ph. D. thesis, unpublished.

VOSS, E.
1953. Ein neu *Smicronyx*-Art aus Deutchland und eine Uebersicht über die mit ihr naher verwandten Arten. Nachr. Bay. Ent. Münchner Ent. Ges., vol. 2, pp. 6–8, 14–15, 22–23, 29–30.

WEISS, HARRY B., and ERDMAN WEST.
1921. Notes on the dodder gall weevil, *Smicronyx sculpticollis* Casey. Ohio Journ. Sci., vol. 22, pp. 63–65, 1 fig.

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